SAMSUNG

ROOM AIR CONDITIONER

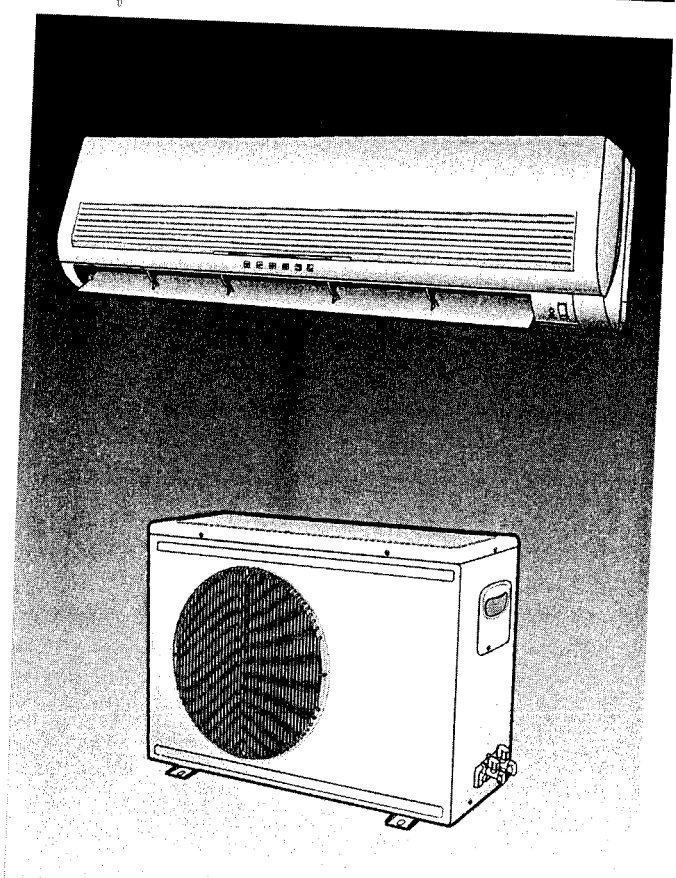
INDOOR
SH30ZC1(C2)

OUTDOOR
SH30ZC1(C2)X

SAMS -01142

SERVICE Manual

AIR CONDITIONER



CONTENTS

1. Precautions
2. Product Specifications
3. Operating Instructions and Installation
4. Disassembly and Reassembly
5. Troubleshooting
6. Exploded Views and Parts List
7. Block Diagrams
8. PCB Diagrams
9. Wiring Diagrams
10. Schematic Diagrams

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1. Precautions

1. Warning: Prior to repair, disconnect the power cord from the circuit breaker.

2. Use proper parts: Use only exact replacement parts. (Also, we recommend replacing parts rather than repairing them.)

3. Use the proper tools: Use the proper tools and test equipment, and know how to use them. Using defective tools or test equipment may cause problems later-intermittent contact, for example.

4. Power Cord: Prior to repair, check the power cord and replace it if necessary.

5. Avoid using an extension cord, and avoid tapping into a power cord. This practice may result in malfunction or fire.

6. After completing repairs and reassembly, check the insulation resistance.
   Procedure: Prior to applying power, measure the resistance between the power cord and the ground terminal. The resistance must be greater than 30 megohms.

7. Make sure that the grounds are adequate.

8. Make sure that the installation conditions are satisfactory.
   Relocate the unit if necessary.

9. Keep children away from the unit while it is being repaired.

10. Be sure to clean the unit and its surrounding area.

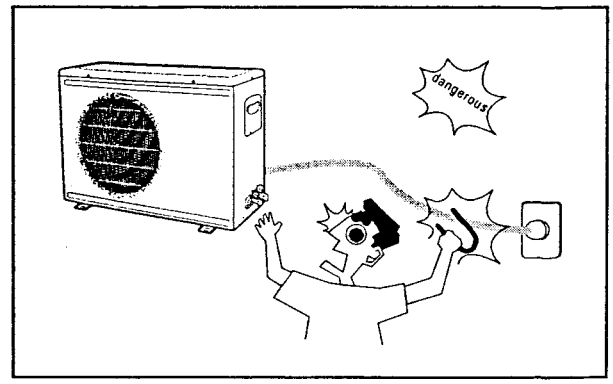


Fig. 1-1 Avoid Dangerous Contact

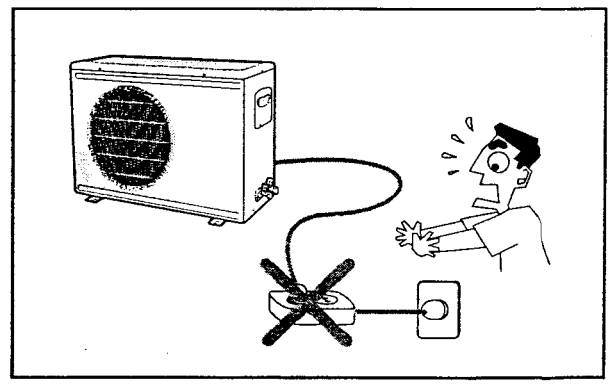


Fig. 1-2 No Tapping and No Extension Cords

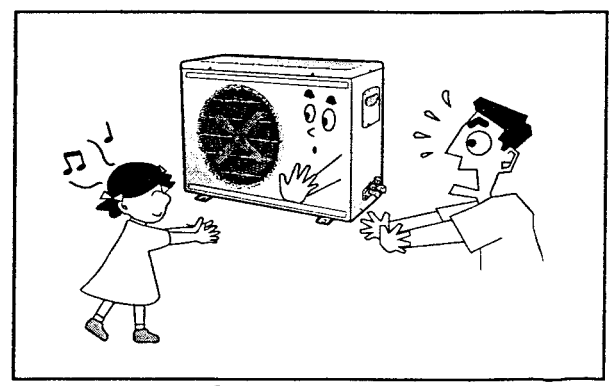


Fig. 1-3 No Kids Nearby!

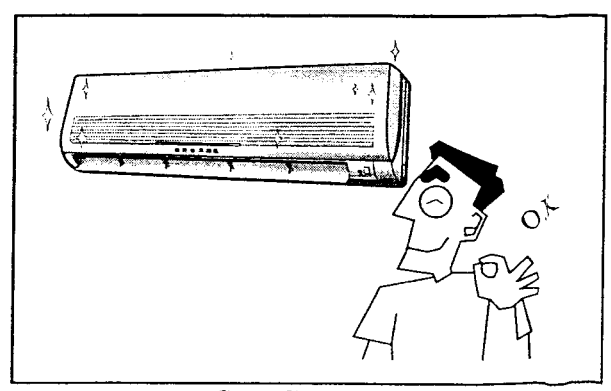


Fig. 1-4 Clean the Unit

2. Product Specifications

2-1 Table

Item			Model	SH30ZC1(C2)				Remarks
				Cool		Heat		
Power Sourse				220-240V, 50Hz				
Perfor-mance	Capacity (ISO/SASO)			BTU	KW	BTU	KW	
				30,000BTU/h	8.4KW	30,000BTU/h	8.6KW	
	Air circulation (High)		m³/min	19		20		
	Moisture removal (High)		Liters/h	30				
Electrical Rating	Available voltage range		V	198 ~ 264				
	Running amperes		A	16		15.5		
	Power input		kw	3.2		2.95		
	Power factor		%	87		82.8		
	Energy efficiency ratio		BTU/wh	9.37		10.2		
	Compressor locked rotor amperes		A	90				
Features	Controls/Temperature control			Microprocessor / IC, Thermistor				
	Control unit			Wireless remote control				
	Timer			24-Hour ON or OFF				
	Fan speed		Indoor/Outdoor	3 Steps and Turbo / 2 Step				
	Airflow direction (indoor)		Horizontal	Manual				
			Vertical	Auto				
	Compressor			Reciprocating (BRISTOL)				
	Refrigerant/Amount charged at rating		g	R22 / 2150g				
	Refrigerant control			Capillary tube				
	Operation sound	Indoor High/Mid/Low	dB-A	48 / 46 / 44				
		Outdoor-High	dB-A	58				
	Refrigerant tubing connections			Flare type				
	Max. allowable tubing length		m	20				
	Refrigerant tube diameter	Narrow tube	(in.)	6.35 (1.4")				
		Wide tube	(in.)	15.88 (5/8")				
Dimensions & Weight	Refrigerant tube kit/Accessories			Optional / Hanger-plate				
				Indoor unit		Outdoor		
	Unit dimensions	Height	mm	345		890		
		Width	mm	1,279		880		
		Depth	mm	229		310		
	Package dimensions	Height	mm	417		943		
		Width	mm	1,352		1,023		
		Depth	mm	313		413		
	Weight	Net	kg	20		86.5		
		Shipping	kg	24		94.5		

2-2 Major Component specifications

■ Indoor unit

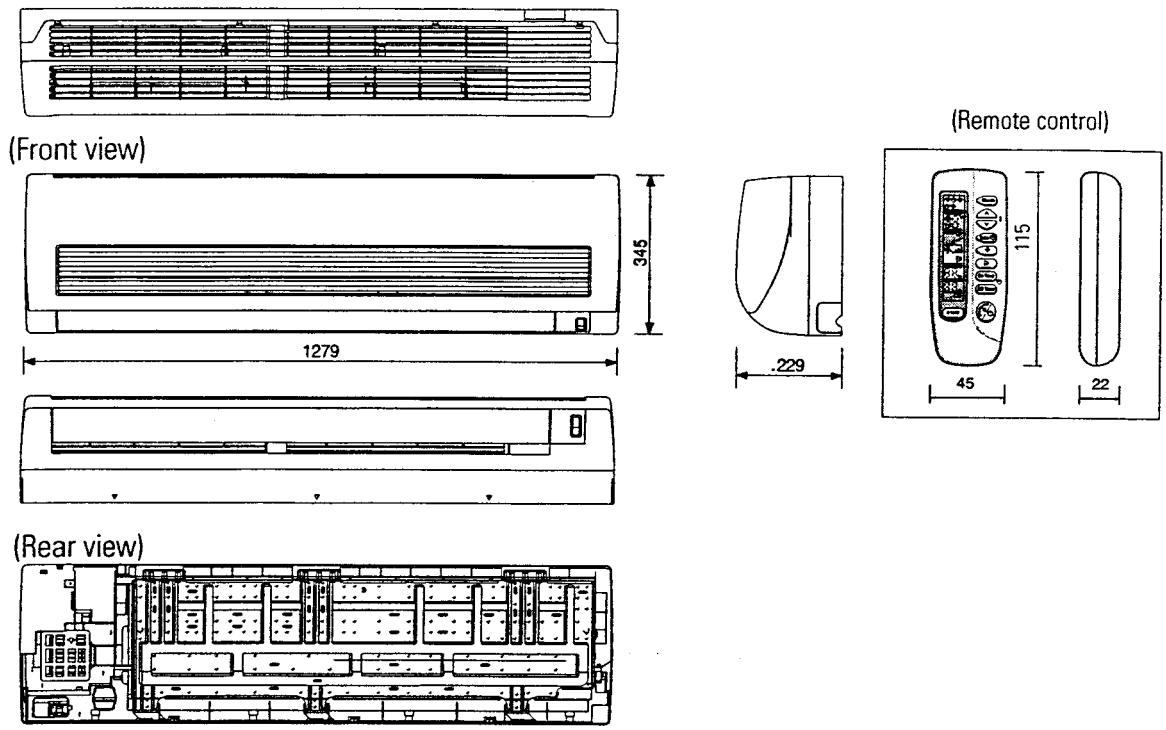
Model					SH30ZC1(C2)	Remarks
PCB	Part No.				PD-SH30ZC-00	
	Controls				Microprocessor	
	Control circuit fuse				250V, 3.15A	
Fan & Fan Motor	Type				Cross-Flow	
	Dia. and length			mm	ø107 / L=485, 2EA	
	Fan motor model				IC-9440 SKJ5A	
	Pols,rpm(at 240V)				4P, 1300 RPM	
	Normal out			W	40W	
	Coil resistance (Ambient temp.20°C)			Ω	94.5 ± 10%	
					84.5 ± 10%	
	Safety devices	Type			17AM034A5	
		Operating temp.	open	°C	135 ± 5°C	
	Run capacitor			μF x VAC	2.0μF x 450VAC	
S-Motor	Type				PM-TYPE	
	Model				PM35(4028)	
	Rating				DC 12V	
	Coil resistance (Ambient temp. 25°C)			1/2	150Ω ± 7%	
Heat Exch.	Coil				AL-FIN / Copper tube	
	Rows x Steps				2 x 12	
	Fin pitch				1.5	
	Face area			m²	0.315	

■ Outdoor unit

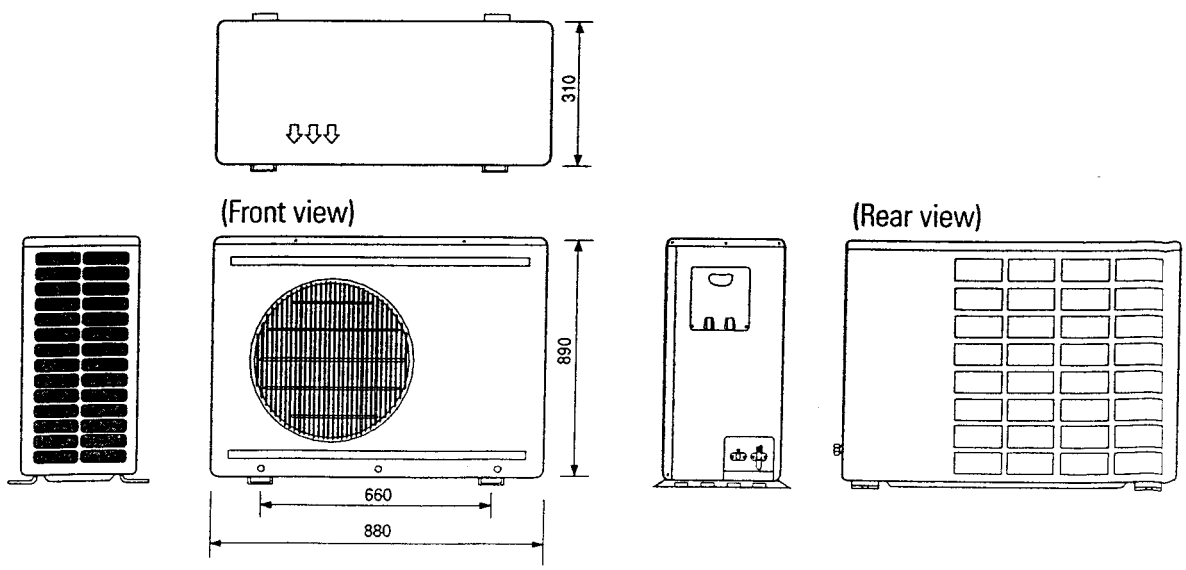
Model					SH30ZC1(C2)X	Remarks
Compressor	Type				Reciprocating	
	Compressor model				H23A423ABKA	
	Normal output			W	3200	
	Comperessor oil kind				WITCO LP200 OR EQUIVALENT.	
	Compressor oil			cc	INITIAL : 1480 REFILL : 1390	
	Oil Specific gravity				0.92	
	Coil resistance (Ambient temp.25°C)			1/2	Start winding : 2.27	
					Run winding : 0.65	
	Safety devices	Type			15HM	
		Overload relay			Internal Line Break	
		Operating temp.	Open	°C	105	
			Close	°C	61	
		Operating amp (Ambient temp.)			73.0 AT 2-10 SECOND	
	Run capacitor				40μF x 450VAC	
Fan & Fan Motor	Type				Propeller	
	Dia. and length			mm	ø460	
	Fan motor model				OSME-606SRC	
	Pols, rpm (at 240V)				6P, 850 / 400 RPM	
	Normal output			W	70W 73.7(HIRPM)	
	Coil resistance (Ambient temp.20°C)			Ω	MAIN : 103.8 ± 10%	
					SUB : 133.6 ± 10%	
	Safety devices	Type			17AM034A5	
		Operating temp.	Open	°C	135 ± 5°C	
	Run capacitor			μF x VAC	4μF x 450VAC	
	Coil				AL-FIN / Copper tube	
Heat Exch.	Rows x Steps				2 x 34	
	Fin pitch			mm	1.7	
	Face area			m²	0.5376	

2-3 Dimensions

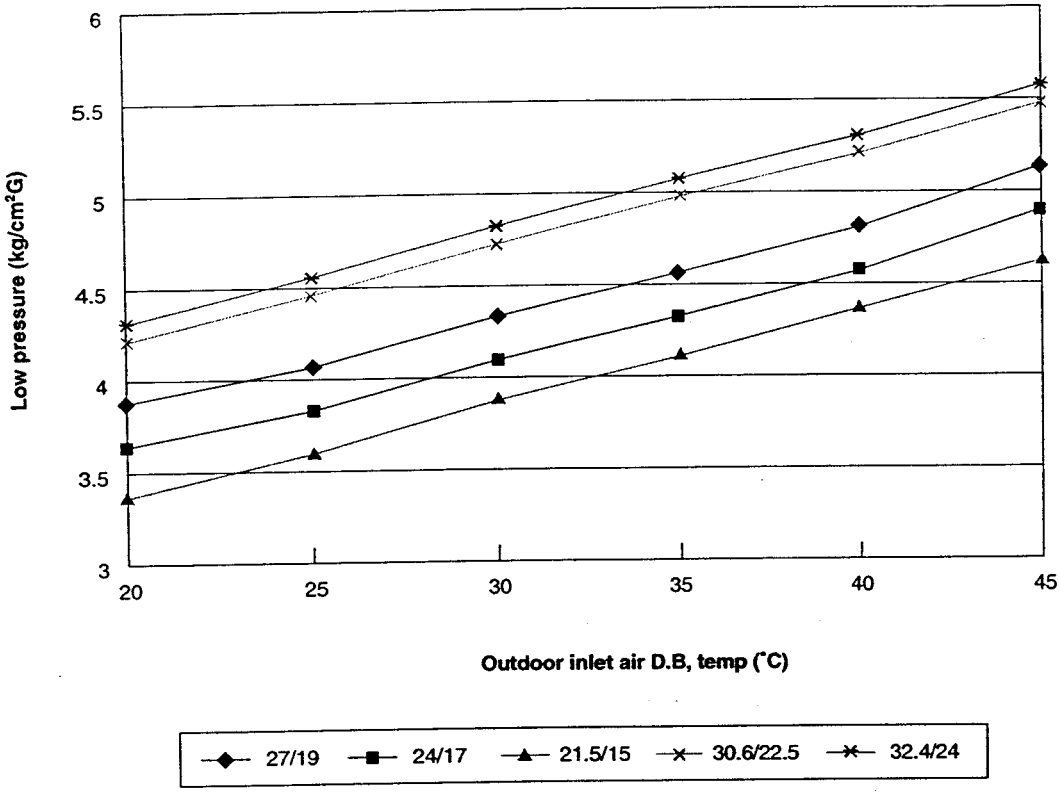
2-3-1 Indoor Unit



2-3-2 Outdoor Unit (30K BTU)



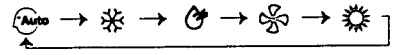
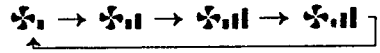
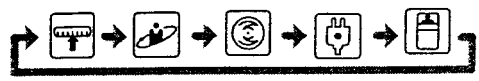
2-4 Pressure Graph



3. Operating Instructions and Installation

3-1 Operating Instructions

3-1-1 Name & Function of Key in remote controller

NO	NAMED OF KEY	FUNCTION OF KEY
1		Power On/Off button to start and stop airconditioner or timer set up
2	(UP)	Temp. up button. To increase the temperatute by the pressing the temperature button
	(DOWN)	Temp. down button. To decrease the temperature by the pressing the temperature button
3		Each time you press this button Mode is changed in the following order  : Auto Mode : Fan Only : Cool Mode : Heat Mode : Dry Mode
4		Press TURBO until the appearance. the air-condition cools or heats the room as quickly as possible. after 30minutes, the airconditioner is reset automatically to the previous mode
		Press until the appearance. the sleep timer can be used when you are cooling or heating your room to switch the air conditioner off automatically after a period of six hours.
5		Each time you press this button, FAN SPEED is changed in the following order. 
6		Adjust air flow vertically.
7		The ON Timer enables you to **switch on** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the On Time, press the (Set/Cancel) button.
8		The Off Timer enables you to **switch off** the air conditioner automatically after a given period of time that is from 30 minutes to 24 hours. To cancel the Off Time, press the (Set/Cancel) button.
9		To select the 5 way function with the remote control, press the 5 way button one or more times until the desired mode is selected. Each time you press the 5 way button  Each 5 way indicator on the indoor unit comes on in order.

3-1-1 Name & Function of Key in remote controller

1. AUTO MODE : In this mode, operation mode(COOL, HEAT) is selected automatically by the room temperature of initial operation.

Room Temp	Operation Type
Tr≥ 21°C+ΔT	Cool Operation (Set Temp:24°C+ΔT)
21°C +ΔT>Tr	Heat Operation (Set Temp : 22°C+ΔT)

ΔT= -1°C, -2°C, 0°C+1°C+2°C
ΔT is controlled by setting temperature up/down key of remote controller

2. COOL MODE : The unit operates according to the difference between the setting and room temperature. (18°C~30°C)

3. HEAT MODE : The unit operates according to the difference between the setting and room temperature.(16°C~30°C)
*Prevention against cold wind : For about 3~5 minutes after initial operation, thermo control or "de-ice", the indoor fan will either not operate or operate very slowly, then switch to the selected fan speed. This period is to allow the indoor unit's heat-exchanger to prewarm before emitting warm air.
*High temperature release function : The outdoor unit for and compressor ON/OFF control for safety operation, when the over-heat is heat exchanger of indoor unit.
*De-ice : Deicing operation is controlled by indoor unit's heat exchanger temperature and accumulating time of compressor's operation.
De-ice end by sensing of the processing time by de-ice Condition.

4. DRY MODE : Has 3 states, each determined by room temperature.
The unit operates in DRY mode.
*Compressor ON/OFF Time is controlled compulsorily(can not set up the fan speed, always breeze).
*Protective function : Low temperature release. (Prevention against freeze)

5. TURBO MODE : This mode is available in AUTO, COOL, HEAT, DRY, FAN MODE.
When this button is pressed at first, the air conditioner is operated "powerful" state for 30 minutes regardless of the set temperature, room temperature.
When this button is pressed again, or when the operating time is 30 minutes, turbo operation mode is canceled and returned to the previous mode.
*But, if you pressed the TURBO button in DRY or FAN mode that is changed with AUTO mode automatically.

6. SLEEP MODE : Sleep mode is available only in COOL or HEAT mode.
The operation will stop after 6 hours.
*In COOL mode : The setting temperature is automatically raised by 1°C each 1hour When the temperature has been raised by total of 2°C, that temperature is maintained.
*In HEAT mode : The setting temperature is automatically droped by 1°C each 1hour. When the temperature has been droped by total of 2°C, that temperature is maintained.

7. FAN SPEED : Manual (3 step), Auto (4 step)
Fan speed automatically varies depending on both the difference between setting and the room temperature.

8. COMPULSORY OPERATION :
For operating the air conditioner without the remote controller.
*AUTO : The operating is the same function that AUTO MODE in the remote controller. And each time you press the button the 5WAY func-tion is changed as follow.
STD → NATURE → POWER → SAVING → SILENCE → POWER OFF
※ STD(standard)( ) : General operation Mode
※ NATURE( ) : The unit is operated according to health pattern control
※ POWER( ) : The unit is operated in powerful state
※ SAVING( ) : The unit is operated in power saving state
※ SILENCE( ) : The unit is operated quitely
Each mode has Auto, Cool, Heat and SLEEP operation designed in advance.

9. SWING : BLADE-H is rotated vertically by the stepping motor.
*Memory louver : When ON/OFF button is pressed at stop state, the BLADE-H returns to its original location which is operating state before stop
*Swing Set : Press the button under the remote control is displayed on LCD the and the blades move up and down. If the one more time press the button, blades location is stop.

10. 24-Hour ON/OFF Real Setting Timer. : The air conditioner is turned ON at a specified time using .
OFF TIMER : The air Conditioner is turned OFF at a specified time using .
*ON TIMER : Only timer LED lights on.
*OFF TIMER : Both timer and operation LED lights on.

11. SELF Diagnosis

Check Point	LED DISPLAY					
	STD	NATURE	POWER	SAVING	SILENCE	TIMER
Indoor unit room temperature sensor error(open or short)	○	○	○	○	○	◑
Indoor unit heat exchanger temperature sensor error(open or short)	◑	○	○	○	○	◑
Indoor fan mal function	○	◑	○	○	○	○
EEPROM error	◑	◑	○	○	○	◑
Option error(option wasn't set up or option data error)	◑	◑	◑	◑	◑	◑

◑ : LED blinking ○ : LED off

12. BUZZER SOUND : Whenever the ON/OFF button is pressed or whenever change occurs to the condition which is set up or select, the compulsory operation mode, buzzer is sounded "beep".

3-2 Installation

3-2-1 Selecting Area for Installation

Select an area for installation that is suitable to the customer's needs.

3-2-1(a) Indoor Unit

1. Make sure that you install the indoor unit in an area providing good ventilation. It must not be blocked by an obstacle affecting the airflow near the air inlet and the air outlet.
2. Make sure that you install the indoor unit in an area allowing good air handling and endurance of vibration of the indoor unit.
3. Make sure that you install the indoor unit in an area where there is no source of heat or vapor nearby.
4. Make sure that you install the indoor unit in an area from which hot or cool air is spread evenly in a room.
5. Make sure that you install the indoor unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).
6. Make sure that you install the indoor unit in an area which provides easy pipe connection with the outdoor unit, and easy drainage for condensed water.
7. Make sure that you install the indoor unit in an area which is large enough to accomodate the measurements shown in figure on the next page.

3-2-1(b) Outdoor Unit

1. Make sure that you install the outdoor unit in area not exposed to the rain or direct sun light.
   (Install a separate sunblind if exposed to direct sun light.)
2. Make sure that you install the outdoor unit in area allowing good air moment, not amplifying noise or vibration, especially to avoid disturbing neighbours.
   (Fix the unit firmly if it is mounted in a high place.)
3. Make sure that you install the outdoor unit in area providing good ventilation and which is not dusty. It must not be blocked by any obstacle affecting the airflow near the air inlet and the air outlet.
4. Make sure that you install the outdoor unit in area free from animals or plants.
5. Make sure that you install the outdoor unit in area not blocking the traffic.
6. Make sure that you install the outdoor unit in area easy to drain condensed water from the indoor unit.
7. Make sure that you install the outdoor unit in area which provides easy connection within the maximum allowable length of a coolant pipe(30**: 20meters).

   Note
   1. Add (30**:35g) of refrigerant (R-22) for every 1 meter if the pipe length exceeds the standard pipe length of 5 meters.
   2. Maintain a height between the indoor and outdoor units of less than 8 meters.

8. Make sure that you install the outdoor unit in an area which is large enough to accommodate the measurements shown in figure on the next page.

3-2-1(c) Remote Control Unit

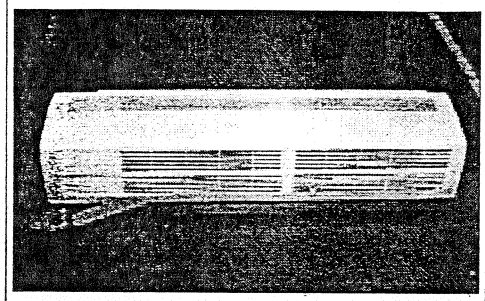
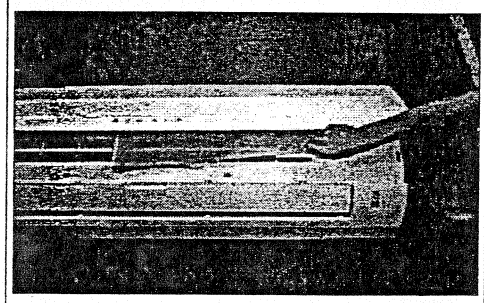
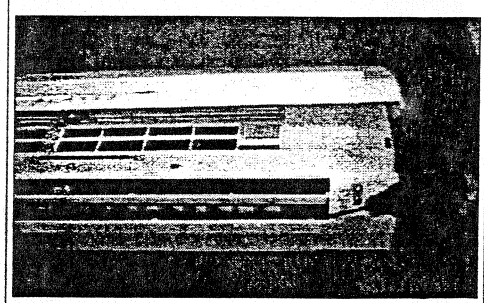
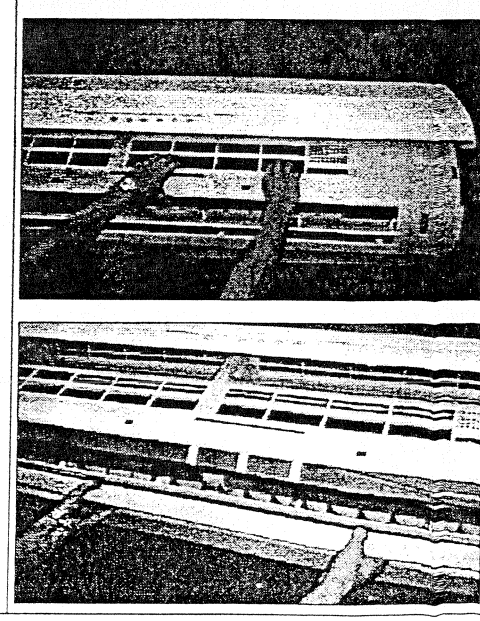
1. Make sure that you install the remote control unit in an area free from obstacles such as curtains etc, which may block signals from the remote control unit.
2. Make sure that you install the remote control unit in an area not exposed to direct sunlight, and where there is no source of heat.
3. Make sure that you install the remote control unit in an area away from TVs, audio units, cordless phones, fluorescent lighting fixtures and other electrical appliances (at least 1 meter).

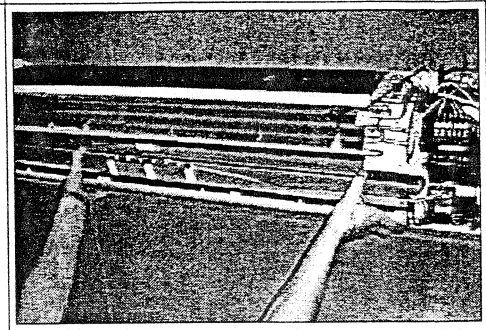
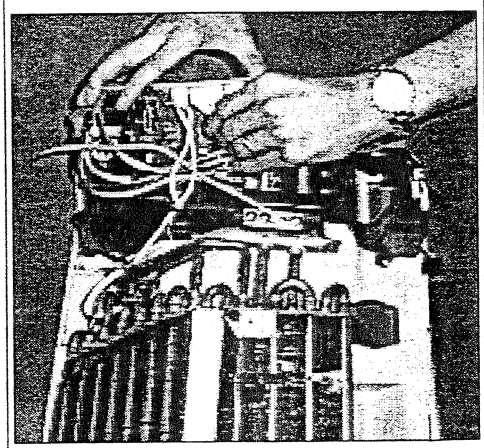
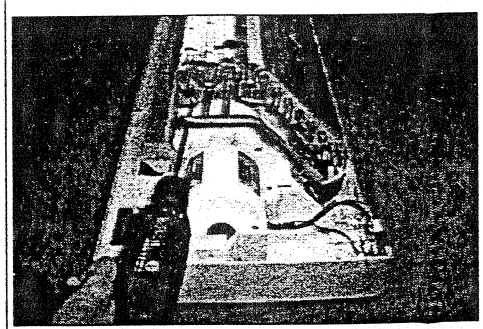
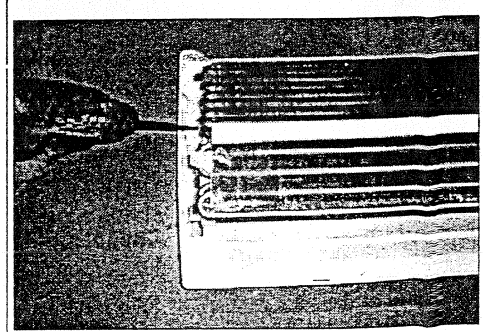
Caution :
It is harmful to the air conditioner if it is used in the following environments: greasy areas (including areas near machines), salty areas such as coast areas, areas where sulfuric gas is present such as hot spring areas. Contact your dealer for advice.

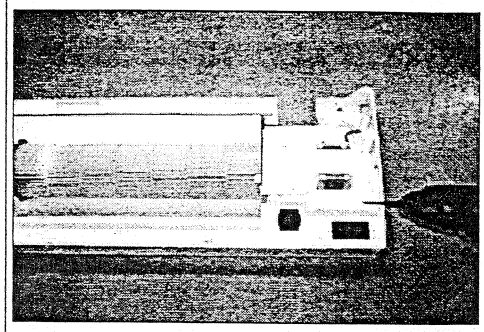
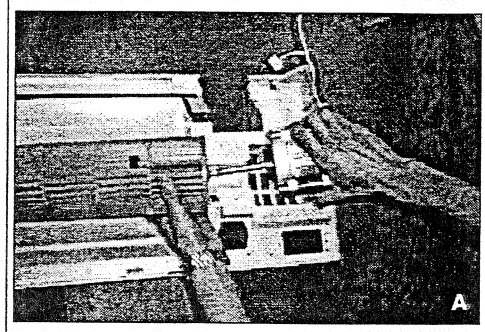
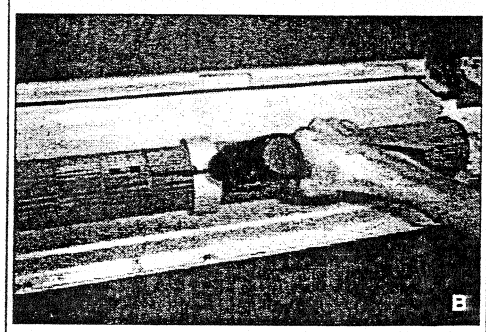
4. Disassembly and Reassembly

Stop operation of the air conditioner and remove the power cord before repairing the unit.

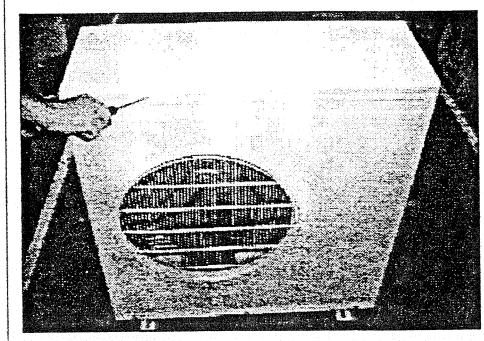
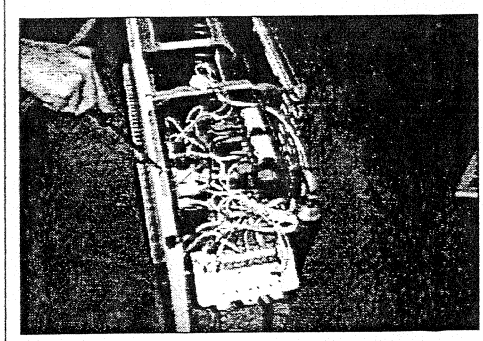
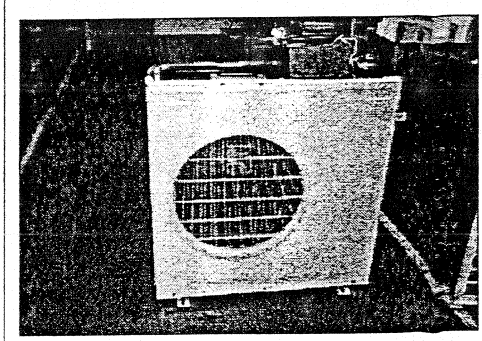
4-1 Indoor Unit

No	Parts	Procedure	Remark
1	Front Grille	1) Stop the air conditioner operation and block the main power. 2) Seperate tape of front panel upper.	
		3) Contract the second finger to the left, and right handle and pull to open the inlet grille. 4) Take the left and right filter out. * Take the Deodorizing and Electrostatic filter out. (Optional) 5) Loosen one of the right fixing screw and seperate the terminal cover. 6) Loosen four screws of front grille.	
		7) Pull the upper four parts of discharge softly for the outside cover to be pulled out.	
		8) Pull softly the lower part of discharge and push it up. **Caution;** Fix the hook of four parts and assembly the front panel.	

No	Parts	Procedure	Remark
2	Ass'y Tray Drain.	1) Do "1", above. Separate the drain hose from the extension drain hose. 2) Take the display PCB out. (Right of indoor unit) 3) Pull tray drain out from the back body.	
3	Electrical Parts (Main PCB)	1) Do "1", "2", above. 2) Take all the connector of PCB upper side out. (Inclusion Earth Wire) 3) Separate the outdoor unit connection wire from the terminal block. 4) If pulling the Main PCB up. it will be taken out.	
4	Heat Exchanger	1) Do "1" and "2", "3", above. 2) Loosen one fixing screw of right side. 3) Separate the holder-back body at the upper side and holder at the rearside. 4) Loosen the one fixing screw of left side. 5) Lifting the heat exchanger up a little to push the up side for separation from the indoor unit.	 

No	Parts	Procedure	Remark
5	Fan Motor and Cross Fan	1) Do "1" "2" "3" "4", above. 2) Loosen the fixing five screws and separate the holder motor. 3) Loosen the fixing screw of fan motor. 4) Separate the fan motor from the right fan.(A) 5) Loosen the fixing screw of the left fan.(B) 6) Seperate the both fan from the back body.	  

4-2 Outdoor Unit

Parts	Procedure	Remark
COVER TOP	1) Loosen the screws on the cover top, and remove the cover top.	
BACK CABI	1) Loosen the screws on the side cabinet, and remove the side cabinet.	
CONTROL BOX	1) Loosen the screw on the control box, and remove the control box. 2) Separate the wiring of control box.	
COVER FRONT	1) Loosen the screws on the cover front, and remove the cover front.	

5. Troubleshooting

5-1 Items to be checked first

1) The input voltage should be rating voltage ±10% range.
The airconditioner may not operate properly if the voltage is out of this range.

2) Is the link cable linking the indoor unit and the outdoor unit linked properly?
The indoor unit and the outdoor unit shall be linked by 7 cables.
Check the terminals if the indoor unit and outdoor unit are properly linked by the same number of cables.
Otherwise the airconditioner may not operate properly.

3) When a problem occurs due to the contents illustrated in the table below it is a symptom not related to the malfunction of the airconditioner.

NO	Operation of air conditioner	Explanation
1	The STD operation indication LED blinks when a power plug of the indoor unit is plugged in for the first time.	It indicates power is on. The LED stops blinking if the operation ON/OFF button on the remote control unit is pushed.
2	In a COOL operation mode, the compressor does not operate at a room temperature higher than the setting temperature that the INDOOR FAN should operate. In a HEAT operation mode, the compressor does not operate at a room temperature lower than the setting temperature that indoor fan should operate.	In happens after a delay of 3 minutes when the compressor is reoperated. The same phenomenon occurs when a power is on. As a phenomenon that the compressor is reoperated after a delay of 3 minutes, the indoor fan is adjusted automatically with reference to a temperature of the air blew
3	Fan speed setting is not allowed in AUTO or DRY mode.	The speed of the indoor fan is set to LL in DRY mode. Fan speed is 4 steps is selected automatically in AUTO mode.
4	Compressor stops operation intermittently in DRY mode.	Compressor operation is controlled automatically in DRY mode depending on the room temperature.
5	Compressor of the outdoor unit is operating although it is turned off in a HEAT mode.	When the unit is turned off while de-ice is activated, the compressor continues operation for up to 9 minutes (maximum) until the deice is completed.
6	Timer LED only of the indoor unit lights up and the air conditioner does not operate.	Timer is being activated and the unit is in ready mode. The unit operates normally if the timer operation is cancelled.
7	The compressor and indoor fan stop intermittently in HEAT mode.	The compressor and indoor fan stop intermittently if room temperature exceeds a setting temperature in order to protect the compressor from overheated air in a HEAT mode.
8	Indoor fan and outdoor fan stop operation intermittently in a HEAT mode.	The compressor operates in a reverse cycle to remove exterior ice in a HEAT mode, and indoor fan and outdoor fan do not operate intermittently for within 20% of the total heater operation
9	The compressor stops intermittently in a COOL mode or DRY mode, and fan speed of the indoor unit decreases.	The compressor stops intermittently or the fan speed of the indoor unit decreases to prevent inside/outside air frozen depending on the inside/outside air temperature.

4) Indoor unit observes operation condition of the air conditioner, and displays self diagnosis details on the display panel.

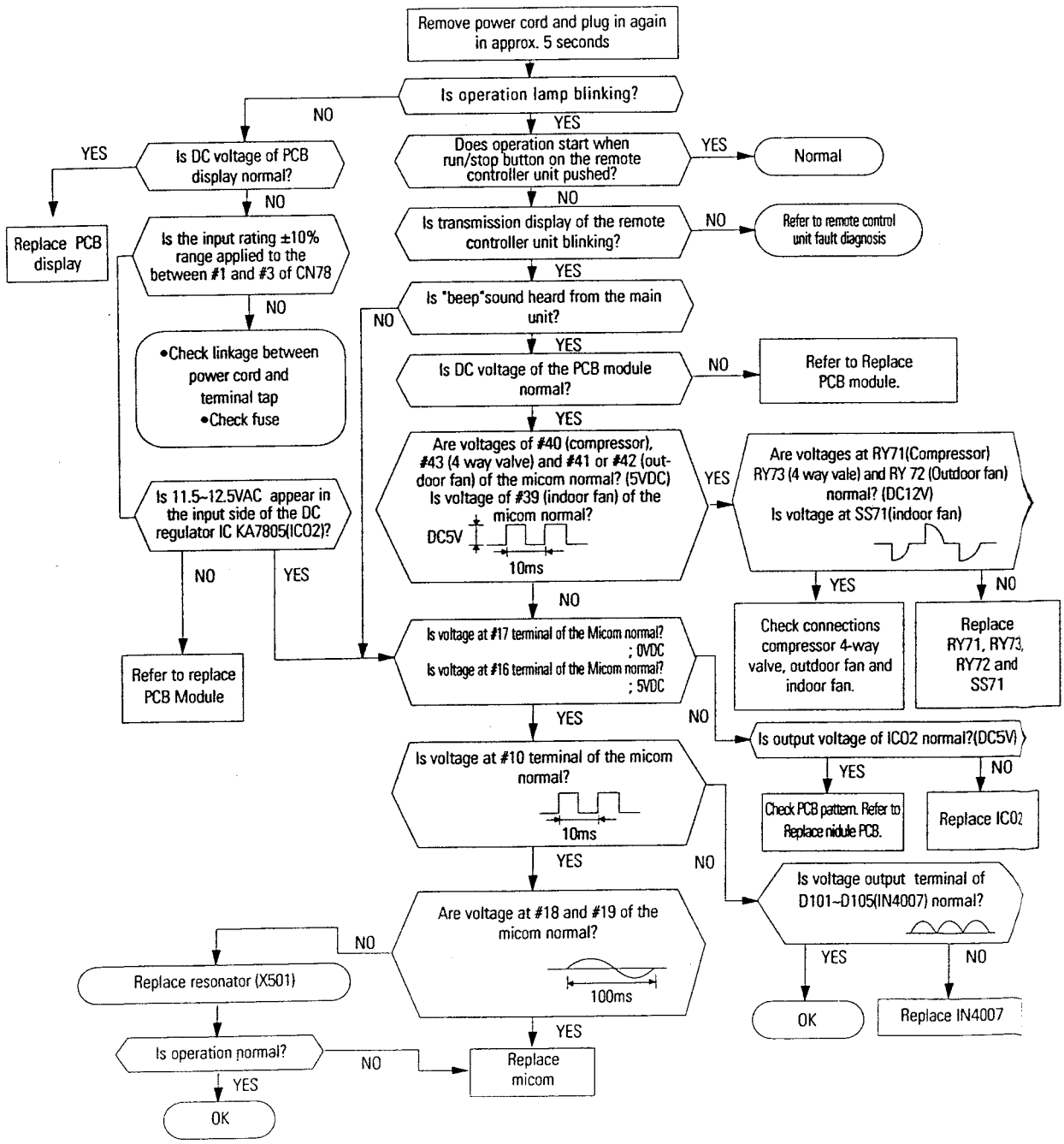
NO	Display	Self Diagnosis
1	STD LED blinking (1Hz)	Restore from power failure (input initial power)
2	TIMER LED blinking (1Hz)	Indoor unit Room sensor Error (open or short)
3	STD and TIMER LED blinking (1Hz)	Indoor unit heat exchanger temperature sensor Error (open or short)
4	NATURE LED blinking (1Hz)	Indoor fan malfunctioning (for speed is Below 450rpm)
5	STD, NATURE and TIMER LED blinking(1Hz)	EEPROM Error
6	All LED blinking (1Hz)	Option Error (Option wasn't setup or option data error)

5-2 Fault Diagnosis by Symptom

5-2-1 No Power (completely dead)-Initial diagnosis

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is AC power linked correctly?
   (3) Is input voltage of DC regulator IC KA7805 (IC02) normal? (11.5VDC-12.5VDC)
   (4) Is output voltage of DC regulator IC KA7805 (IC02) normal? (4.5VDC-5.5VDC)

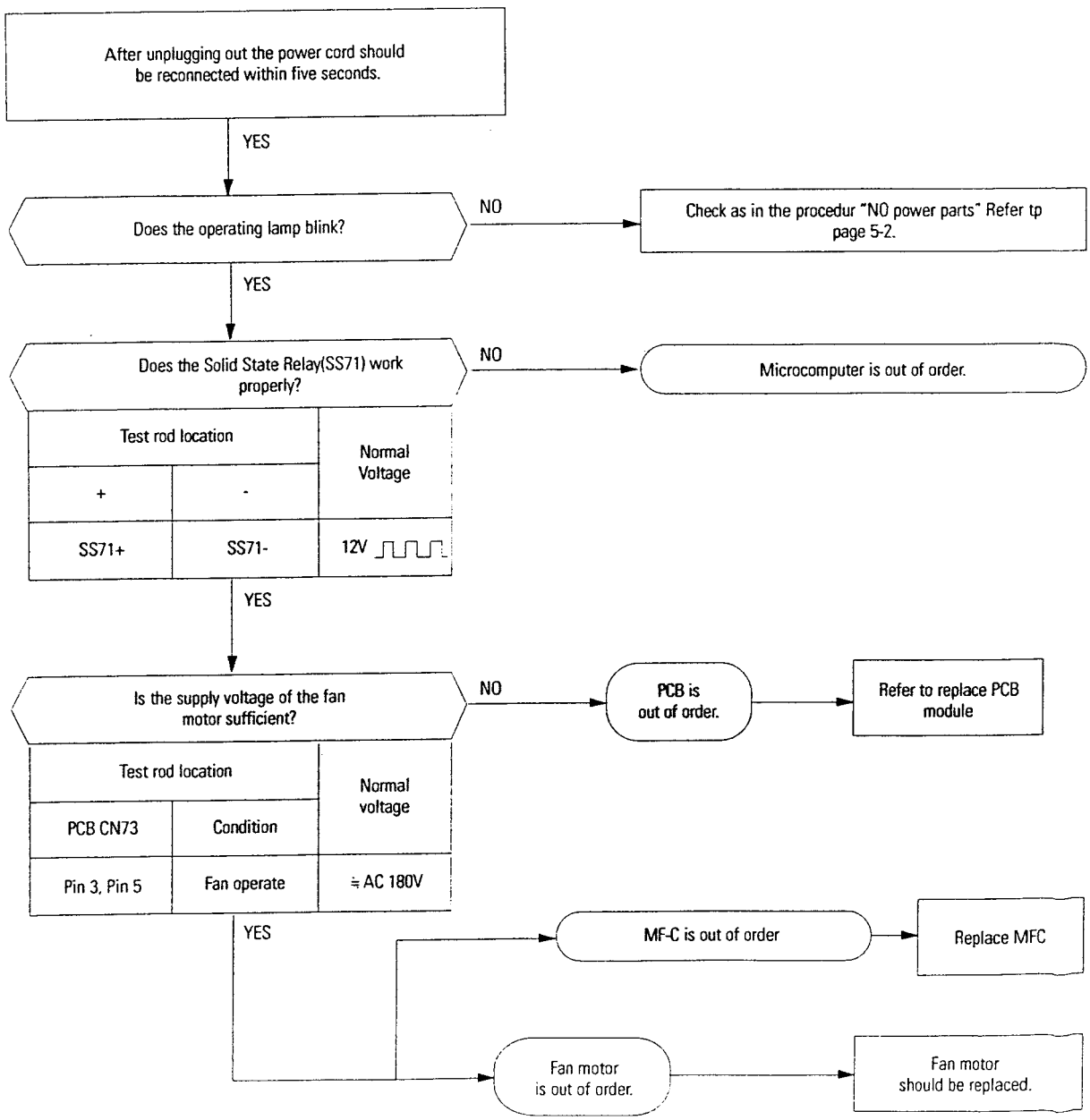
2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds
Is operation lamp blinking?
NO
YES
Is DC voltage of PCB display normal?
YES
Replace PCB display
NO
Is the input rating ±10% range applied to the between #1 and #3 of CN78
NO
•Check linkage between power cord and terminal tap
•Check fuse
Is 11.5~12.5VAC appear in the input side of the DC regulator IC KA7805(IC02)?
NO
YES
Refer to replace PCB Module
Does operation start when run/stop button on the remote controller unit pushed?
YES
Normal
NO
Is transmission display of the remote controller unit blinking?
NO
Refer to remote control unit fault diagnosis
YES
Is "beep"sound heard from the main unit?
NO
YES
Is DC voltage of the PCB module normal?
NO
Refer to Replace PCB module.
YES
Are voltages of #40 (compressor), #43 (4 way valve) and #41 or #42 (out-door fan) of the micom normal? (5VDC)
Is voltage of #39 (indoor fan) of the micom normal?
DC5V
10ms
YES
Are voltages at RY71(Compressor) RY73 (4 way vale) and RY 72 (Outdoor fan) normal? (DC12V)
Is voltage at SS71(indoor fan)
YES
NO
Check connections compressor 4-way valve, outdoor fan and indoor fan.
Replace RY71, RY73, RY72 and SS71
NO
Is voltage at #17 terminal of the Micom normal? ; 0VDC
Is voltage at #16 terminal of the Micom normal? ; 5VDC
YES
NO
Is output voltage of IC02 normal?(DC5V)
YES
NO
Check PCB pattern. Refer to Replace nidule PCB.
Replace IC02
Is voltage at #10 terminal of the micom normal?
10ms
YES
NO
Is voltage output terminal of D101~D105(IN4007) normal?
YES
NO
OK
Replace IN4007
Are voltage at #18 and #19 of the micom normal?
100ms
NO
Replace resonator (X501)
YES
Is operation normal?
NO
YES
OK
Replace micom

5-2-2 When the Indoor Unit Fan Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is the indoor unit fan motor properly connected with the connector (CN73)?
   (2) Is the AC voltage correct?
   (3) Is HALL IC in indoor fan motor properly connected with the connector (CN43)?
   (4) Is the running capacitor(CR71) properly connected with the solder part of the PCB?

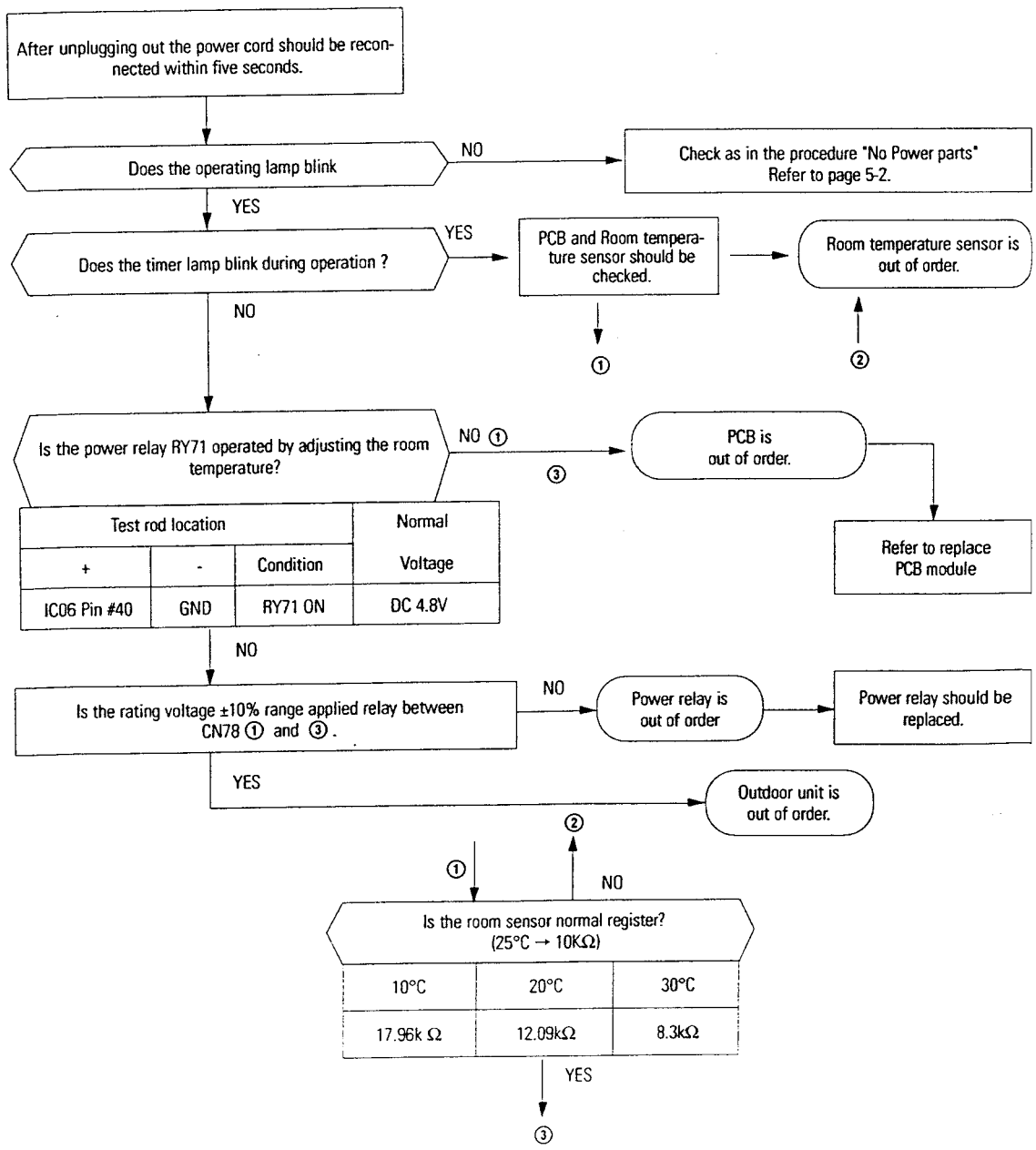
2) Troubleshooting procedure



5-2-3 When the Outdoor Unit Does Not Operate. (Initial Diagnosis)

1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the set temperature of the remote control higher than room temperature in COOL mode?
   (3) Is the set temperature of the remote control lower than room temperature in HEAT mode?
   (4) Is the POWER IN connector (CN78) linked correctly?
   (5) Is the outdoor unit properly connected with the TERMINAL BLOCK connector(8P)?

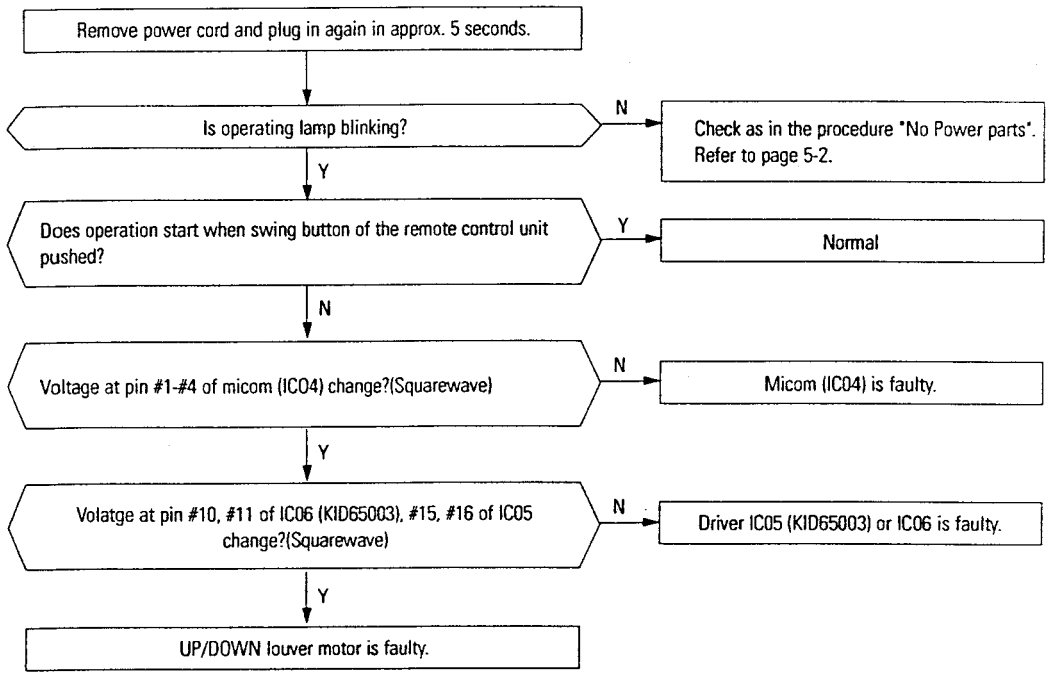
2) Troubleshooting procedure



5-2-4 When the UP/DOWN Louver Moter Does Not Operate. (Initial Diagnosis)

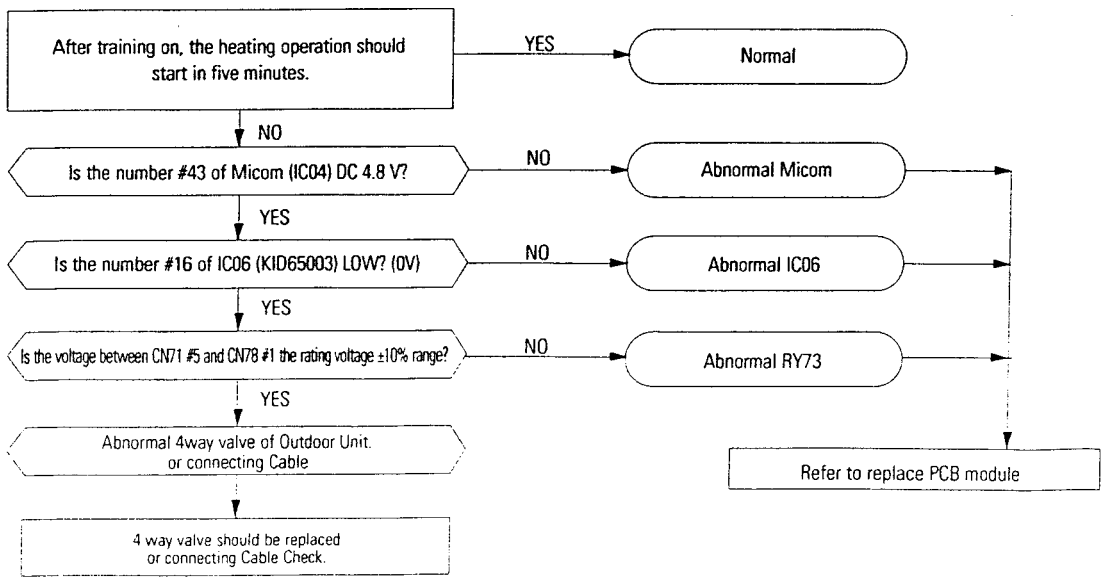
1) Checklist :
   (1) Is input voltage normal? (the rating voltage ±10% range)
   (2) Is the UP/DOWN louver motor properly connected with the connector (CN61)?

2) Troubleshooting procedure


Remove power cord and plug in again in approx. 5 seconds.
Is operating lamp blinking?
N
Check as in the procedure "No Power parts". Refer to page 5-2.
Y
Does operation start when swing button of the remote control unit pushed?
Y
Normal
N
Voltage at pin #1-#4 of micom (IC04) change?(Squarewave)
N
Micom (IC04) is faulty.
Y
Volatge at pin #10, #11 of IC06 (KID65003), #15, #16 of IC05 change?(Squarewave)
N
Driver IC05 (KID65003) or IC06 is faulty.
Y
UP/DOWN louver motor is faulty.

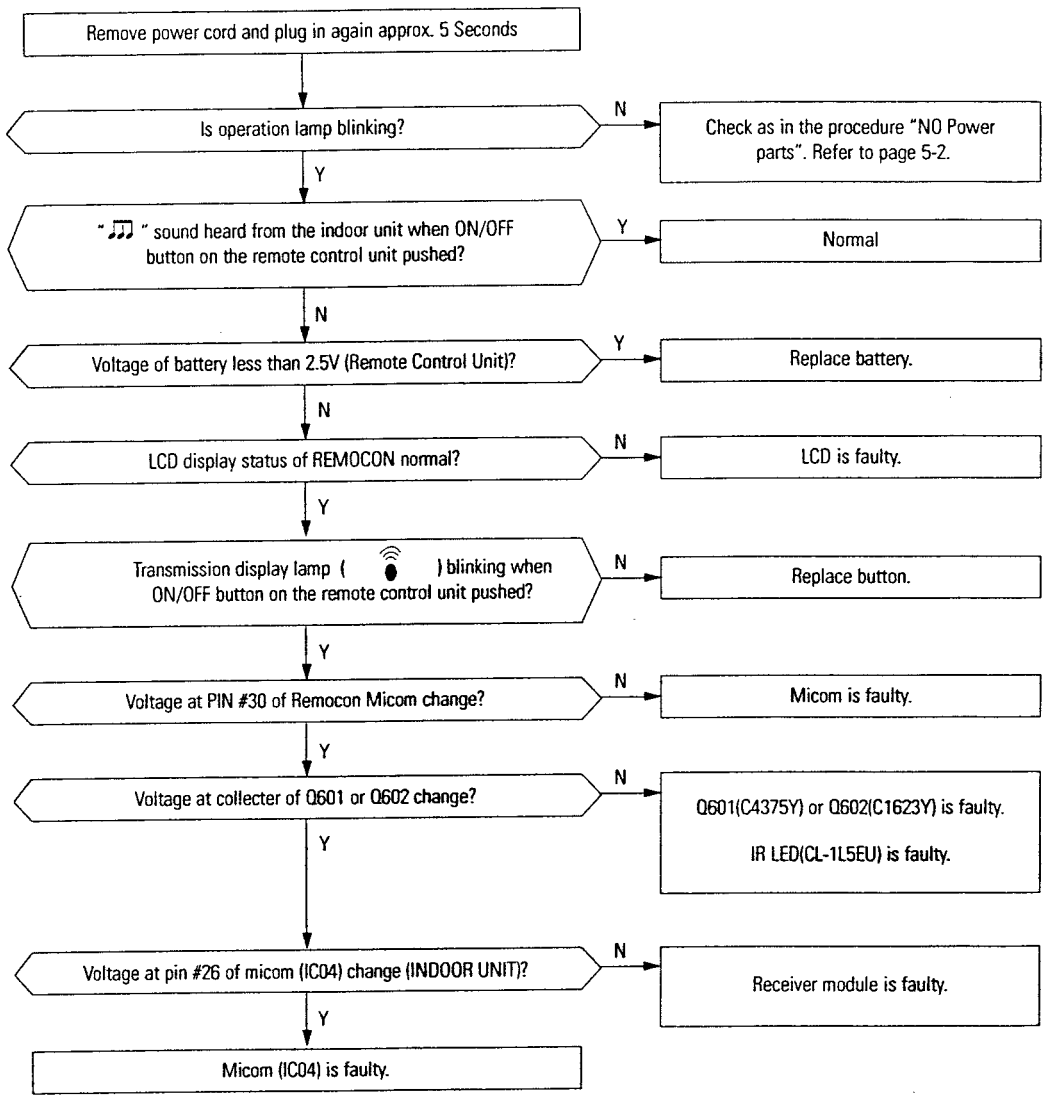
5-2-5 In the Heat mode, When there is no warm air current. Check this first;

(1) Is the set temperature of Remote Control lower than room temperature in Heat mode?
(2) Is the Indoor PCB properly connected with the CN71 and CN78 connector?


After training on, the heating operation should start in five minutes.
YES
Normal
NO
Is the number #43 of Micom (IC04) DC 4.8 V?
NO
Abnormal Micom
YES
Is the number #16 of IC06 (KID65003) LOW? (0V)
NO
Abnormal IC06
YES
Is the voltage between CN71 #5 and CN78 #1 the rating voltage ±10% range?
NO
Abnormal RY73
YES
Abnormal 4way valve of Outdoor Unit. or connecting Cable
4 way valve should be replaced or connecting Cable Check.
Refer to replace PCB module

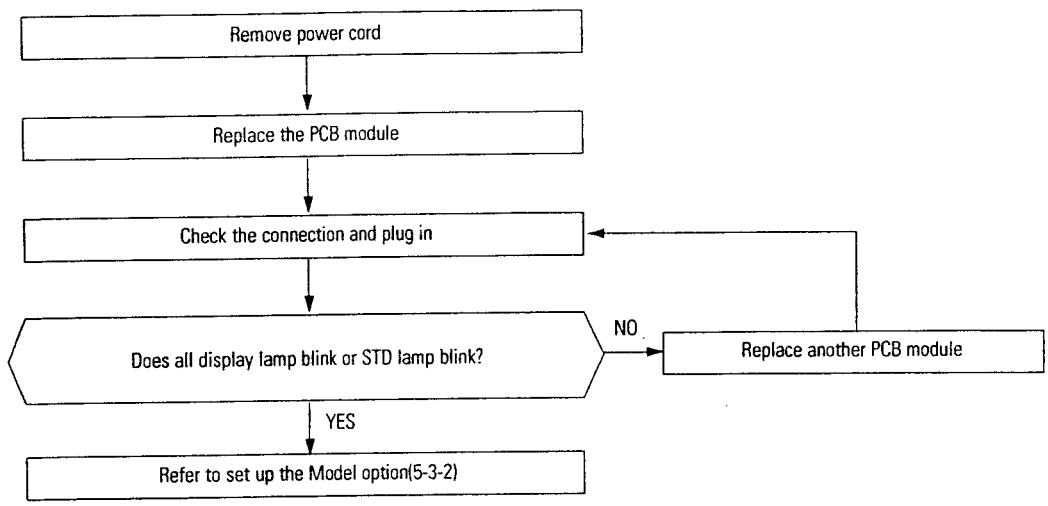
5-2-6 If Operation By Remote Control Unit Is Impossible. (Initial Diagnosis)

1) Troubleshooting procedure


Remove power cord and plug in again approx. 5 Seconds
Is operation lamp blinking?
N
Check as in the procedure "NO Power parts". Refer to page 5-2.
Y
" ♫ " sound heard from the indoor unit when ON/OFF button on the remote control unit pushed?
Y
Normal
N
Voltage of battery less than 2.5V (Remote Control Unit)?
Y
Replace battery.
N
LCD display status of REMOCON normal?
N
LCD is faulty.
Y
Transmission display lamp ( ) blinking when ON/OFF button on the remote control unit pushed?
N
Replace button.
Y
Voltage at PIN #30 of Remocon Micom change?
N
Micom is faulty.
Y
Voltage at collecter of Q601 or Q602 change?
N
Q601(C4375Y) or Q602(C1623Y) is faulty.
IR LED(CL-1L5EU) is faulty.
Y
Voltage at pin #26 of micom (IC04) change (INDOOR UNIT)?
N
Receiver module is faulty.
Y
Micom (IC04) is faulty.

5-3 Replace PCB Model option

5-3-1 Replace PCB model option


Remove power cord
Replace the PCB module
Check the connection and plug in
Does all display lamp blink or STD lamp blink?
NO
Replace another PCB module
YES
Refer to set up the Model option(5-3-2)

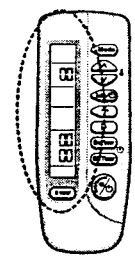
5-3-2 Set up the Model option

The Method for Setting up the model option with remocon

- **It is necessary to set up option code after replacing the main-PCB as a service parts.**
  Make sure that you can set up the option of code the remote controller after you replace the main PBA otherwise, the unit won't be working properly and all LED lamps on display will be flickering.

Step 1 : Preparing the remocon to main PCB option set

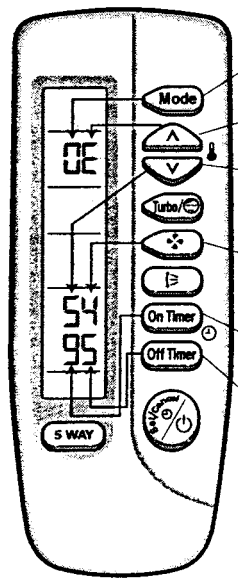
1st Remove the battery from the remocon.
2nd Press the temperature raise/down button simultaneously and insert the battery again.
3rd Make sure the remocon display shown as 00 00 00.



Step 2 : Second stage preparation of the remocon option set.

※ **Note** ; In case the wrong letter has been selected, continue to press the button until the correct letter appears.

1st If the first stage number "0" appears on the display, proceed to the second stage.
2nd Every time the ① and ⑦ button, "0" and "1" each continue to appear.
3rd Whenever pressing the ②, ③, ④, ⑤, ⑥, ⑧, ⑨, ⑩, ⑪, ⑫ button, the number increase from 0~9(0123456789) and A, b, C, d, E, F each time.



① If the first number is 0, it is correct otherwise press Mode until 0 appear.

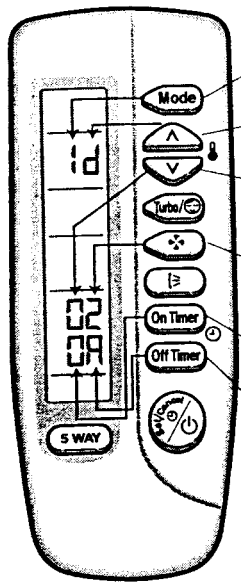
② When pressing the ∧ button 0~F appear on the display, select one of them.

③ When pressing the ∨ button 0~F appear on the display, select one of them.

④ When pressing the button 0~F appear on the display, select one of them.

⑤ When pressing the On Timer button 0~F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0~F appear on the display, select one of them.



① If the first number is 1, it is correct otherwise press Mode until 1 appear.

② When pressing the ∧ button 0~F appear on the display, select one of them.

③ When pressing the ∨ button 0~F appear on the display, select one of them.

④ When pressing the button 0~F appear on the display, select one of them.

⑤ When pressing the On Timer button 0~F appear on the display, select one of them.

⑥ When pressing the Off Timer button 0~F appear on the display, select one of them.

Step 3 : Reconfirming option set after completion

(in case of ex. 0E5495-1d020A)

After pressing Mode selector for the 0 mode, the display shown as 0E 54 95.
After pressing Mode selector for the 1 mode, the display shown as 1d 02 0A.

Step 4 : Pressing the ON/OFF button (⏻)

When pressing the operation ON/OFF key with the direction of remote controller for unit, the sound "Ding" or "Diriring" is heard and the first LED lamp on the left side is flickering at the same time, then the input of option is completed. (If the diriring sound isn't heard, try again pressing the ON/OFF button.)

Step 5 : Unit operation test-run

First, Remove the battery from the remote controller.
Second, Re-insert the battery into the remote controller.
Third, Press ON/OFF key with the direction of remote controller for set.

• **Error Mode**

1st If all lamps of indoor unit are flickering, Plug out and plug in again and pressing ON/OFF key to retry.

2nd If the unit is not working properly or all lamps are continuously flickering after setting the option code, see if the correct option code is set up for it's model.

■ OPTION ITEMS

REMOCON / MODEL	SEG1	SEG2	SEG3	SEG4	SEG5	SEG6	SEG7	SEG8	SEG9	SEG10	SEG11	SEG12
SH30ZC1	0	F	5	4	9	5	1	d	0	2	0	A
SH30ZC2	0	E	5	4	9	5	1	d	0	2	0	A

5-4 PCB Inspection

5-4-1 Cautions for Part Replacement

1. The human body carries much static electricity. Before touching a part for repair, replacement or the similar purpose, be sure to touch a grounded metallic portion by hand to let the static electricity go through the metallic portion to the earth. Especially when handling any micro computer or IC, carefully remove such static electricity before touching them.

2. When repairing any part on a work bench, be sure to place an insulated sheet on the bench and always keep the sheet surface neat without any metal fragments. If any such fragment touches a part, a secondary trouble will possibly be caused in the part.

3. Before replacing any parts, be sure to turn off the power supply. If such replacement is done with the power supply kept on, an electric shock, short circuit or destruction of a part may result.

4. During replacement or repair of a part, carefully handle it : The printed circuit board has fine lead wires (jumper wires) and glass-made parts (diode) on its substrate. So if a circuit board is roughly handled, such lead wires and parts will be easily broken or damaged by bending or shock.

5. When soldering the lead wires of any new part, be sure to polish them using an emery paper or the like before solding them. Since the lead wires of any new part are covered with an oxide film, solder cannot adhere to the lead wires if not polished.

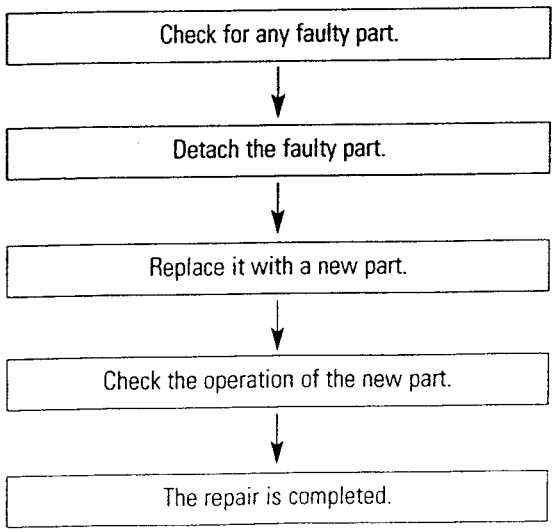
6. When soldering any part, care should be exercised not to apply any high-wattage soldering iron to the part for a long time. Some parts are of so low a heat resistance that they may be broken or have the properties changed if a soldering iron is so applied (Otherwise, the pattern may possibly be separated and raised).

7. The heat of the soldering iron should be transfered to the entire object to be soldered. If the solder pieces are not well fused due to insufficient transfer of the heat from the soldering iron, no satisfactory electrical continuity can be assured even if the soldered objects appear well connected to each other.

8. The solder used should be limited to a minimum. If excessive solder is used, it will cause inter-pattern contact, which may cause malfunction of the circuit.

5-4-2 Procedure

The parts should be replaced in the following procedure.


Check for any faulty part.
Detach the faulty part.
Replace it with a new part.
Check the operation of the new part.
The repair is completed.

5-4-3 Detailed Procedure

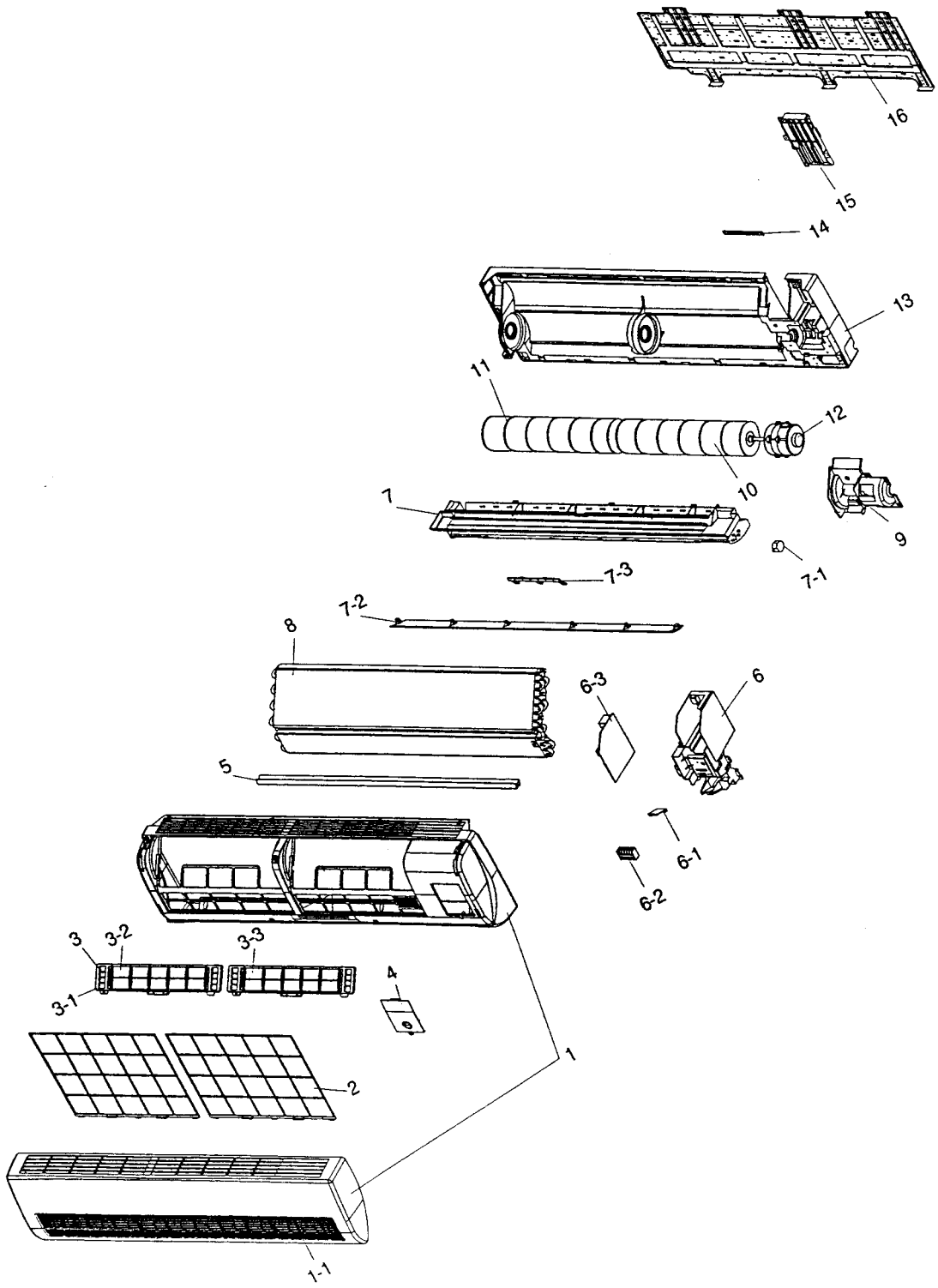
No.	Malfunction	Checking point (symptoms)	Causes
1	Pull out the power plug from the AC terminal and confirm the fuse on the PCB assembly	1. Is the broken?	• Voltage over • Indoor unit fan motor short-circuit
2	Turn the power on.	Voltage check	SMPS circuit is faulty
		1. AC voltage at both C702? : rating voltage ±10% range	• SMPS circuit is faulty
		2. DC voltage at both C101? : about DC 325[v] ±10%	
		3. DC voltage at IC02 : IN-GND → DC12[v] : OUT-GND → DC5[v]	
		4. Voltage waveform at Q201 : collector-GND → squarewave	• PC02, R202-R205
3	Set the power on.	Voltage check	
		1. Voltage of IC06 COOL : PIN#40, PIN#41 or PIN#42 HEAT : PIN#40, PIN#41 or PIN#42, PIN#43 : relay on → 0.7[v] : relay off → 12[v]	• IC06 is faulty
		2. Voltage at terminal block ((N1)-1) → rating voltage ± 10% ((N1)-2 or 4) → rating voltage ± 10% ((N1)-3) → rating voltage ± 10%	• RY71 is faulty • RY72 or RY74 is faulty • RY73 is faulty

5-4-4 Fault Diagnosis of Major Parts

<table>
<tr><th>Parts</th><th colspan="2">Diagnosis</th></tr>
<tr><td rowspan="3">Temp. Sensor
Heat ex. Sensor</td><td colspan="2">Measure resistance with a tester.</td></tr>
<tr><td>Normal</td><td>
<table>
<tr><td>Ambient temperature</td><td>15°C</td><td>20°C</td><td>25°C</td><td>30°C</td><td>35°C</td><td>40°C</td></tr>
<tr><td>Resistance of thermistor[KΩ]</td><td>14.68</td><td>12.09</td><td>10</td><td>8.31</td><td>6.94</td><td>5.83</td></tr>
</table>
</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω ... open or short</td></tr>
<tr><td rowspan="5">Indoor Fan Motor</td><td colspan="2">Measure resistance between terminals (CN73) with a tester</td></tr>
<tr><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><td>between</td><td>Voltage</td><td>Remark</td></tr>
<tr><td>Red, Blue</td><td>94.5 ± 10%</td><td>Main</td></tr>
<tr><td>Red, Yellow</td><td>84.5 ± 10%</td><td>Sub</td></tr>
</table>
</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω ... open or short</td></tr>
<tr><td colspan="2">Measure the voltage between ground and signal wire of the fan motor.</td></tr>
<tr><td>Normal</td><td>
<table>
<tr><td>between</td><td>Voltage</td></tr>
<tr><td>Gray, Orange</td><td>0.5V–4.5V</td></tr>
<tr><td>Yellow, Orange</td><td>5V</td></tr>
</table>
</td></tr>
<tr><td>Abnormal</td><td>Abnormal if voltage doees not change from 0V to 5V.</td></tr>
<tr><td rowspan="3">Outdoor Fan Motor</td><td>Normal</td><td>At ambient temperature (10°C ~ 30°C)
<table>
<tr><td>between</td><td>Resistance</td><td>Remark</td></tr>
<tr><td>Blue, Red</td><td>103.8 ± 10%</td><td>Main</td></tr>
<tr><td>Blue, White</td><td>133.6 ± 10%</td><td>Sub</td></tr>
</table>
</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω ... open or short</td></tr>
<tr><td rowspan="3">Stepping Motor
(UP/DOWN swing motor)</td><td colspan="2">Measure resistance between red wire and each terminal.</td></tr>
<tr><td>Normal</td><td>Approx. 150Ω at ambient temperature (20°C ~ 30°C)</td></tr>
<tr><td>Abnormal</td><td>∞, 0Ω ... open or short</td></tr>
</table>

6. Exploded Views and Parts List

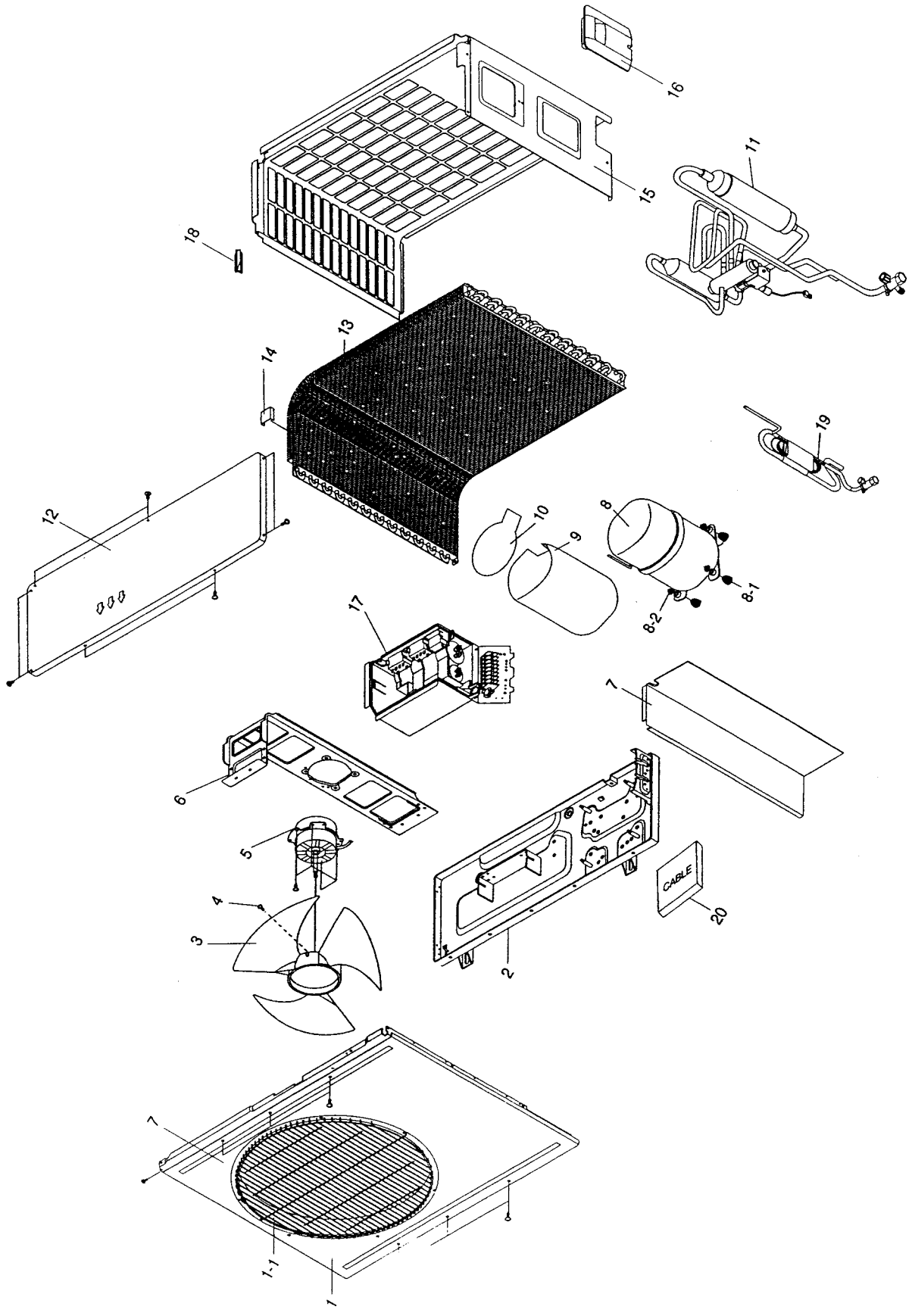
6-1 Indoor Unit



■ Parts List

No.	CODE NO	Description	Specification	Q'TY	Remarks
				SH30ZC1(C2)	
1	DB92-00206B	ASSY-PANEL FRONT	ASSY	1	
1-1	DB64-00339A	GRILLE-AIR INLET	ABS	1	
2	DB63-00268A	GUARD-AIR FILTER	PP	2	
3	DB63-00290A	ASSY-CLEANER FILTER	ASSY	1	
3-1	DB61-00035A	CASE-CLEANER FILTER	항균 PP	2	
3-2	DB74-00285A	FILTER-CARBON	405X82	1	
3-3	DB74-00286A	FILTER-CLEANER	405X82	1	
4	DB63-00270A	COVER-TERMINAL	난연 ABS	1	
5	DB60-00017A	SPACER-EVAP	PVC	1	
6	DB93-00870A	ASSY-CONTROL IN	ASSY	1	
6-1	DB93-00830A	ASS'Y MODULE & S/W	ASSY	1	
6-2	DB65-00073A	ASSY-TERMINAL BLOCK	ASSY	1	
6-3	PD-SH30ZC-00	ASSY-MAIN PCB	ASSY	1	
7	DB94-00117B	ASSY-TRAY DRAIN	ASSY	1	
7-1	DB31-00092B	ASSY-STEPPING MOTOR	ASSY	1	
7-2	DB66-00249A	BLADE-H	ABS	1	
7-3	DB93-00823A	ASSY-CENTER DISPLAY	ASSY	1	
8	DB96-01137A	ASSY EVAPORATOR UNIT	ASSY	1	
9	DB61-00630A	HOLDER-MOTOR	난연 PP	1	
10	DB94-00118A	ASSY-FAN RH	ASSY	1	
11	DB94-00119A	ASSY-FAN LF	ASSY	1	
12	DB31-00104A	MOTOR-FAN IN	IC-9440SKJ5A	1	
13	DB94-00116B	ASSY-BACK BODY	ASSY	1	
14	DB61-00655A	HOLDER-BODY BACK	SGCC-M	1	
15	DB61-00633A	HOLDER-PIPE	ABS	1	
16	DB70-00143A	PLATE-HANGER	SGCC-M	1	

6-2 Outdoor Unit

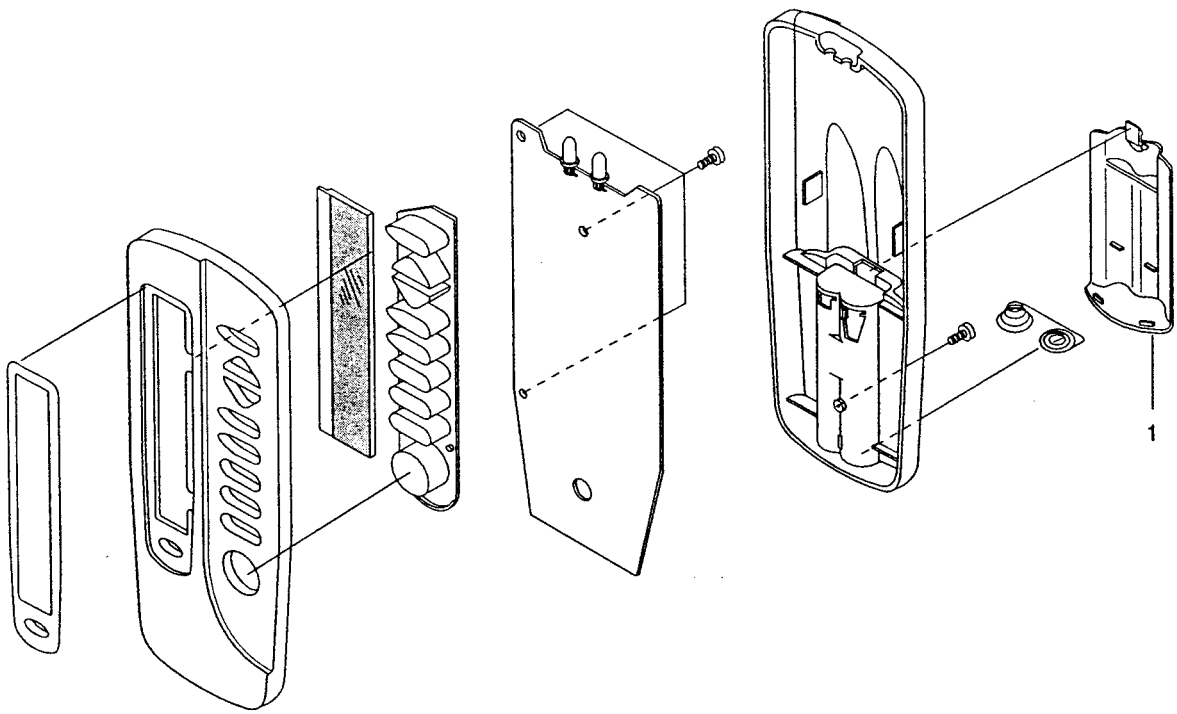


■ Parts List

No.	CODE NO	Description	Specification	Q'TY	Remarks
				SH30ZC1(C2)	
1	DB90-00533A	ASSY-CABI FRONT	ASSY	1	
1-1	DB63-00320A	GUARD-FAN	MSWR	1	
2	DB90-20157P	ASSY-BASE OUT	ASSY	1	
3	DB67-00140A	FAN-PROPELLER	AS+G/F20%	1	
4	DB60-20020A	BOLT-SPECIAL	M8, L25	1	
5	DB31-00103A	MOTOR-FAN OUT	OSME-606SRC	1	
6	DB61-00653A	BRACKET-MOTOR	SGCC-M	1	
7	DB94-00120A	ASSY-PARTITION	ASSY	1	
8	DB95-00220B	ASSY-COMP	H23A423ABKA	1	
8-1	DB73-10008A	GROMMET-ISOLATOR	EPDM	4	
8-2	DB60-00028A	NUT-WASHER	M8, ZPC	4	
9	DB63-00291A	FELT-COMP SOUND	FELT	1	
10	DB63-00292A	FELT-COMP TOP	FELT	1	
11	DB99-00147A	ASSY-4WAY VALVE	ASSY	1	
12	DB90-10616D	ASSY-CABI UPPER	ASSY	1	
13	DB96-01138A	ASSY-CONDENSER	ASSY	1	
14	DB61-30276A	BRACKET-HOLDER	SGCC-M	1	
15	DB90-00555A	ASSY-CABI SIDE	ASSY	1	
16	DB90-40176B	COVER-CONTROL	ABS(난연)	1	
17	DB93-00880A	ASSY-CONTROL OUT	ASSY	1	
18	DB63-10492A	COVER-HANDLE	ABS	1	
19	DB96-01014A	ASSY-CAPILLARY	ASSY	1	
20	DB93-00681G	ASSY-CABLE BOX	ASSY	1	

6-3 Remote Control & PCB Box

6-3-1 Remote Control (DB93-00251L)

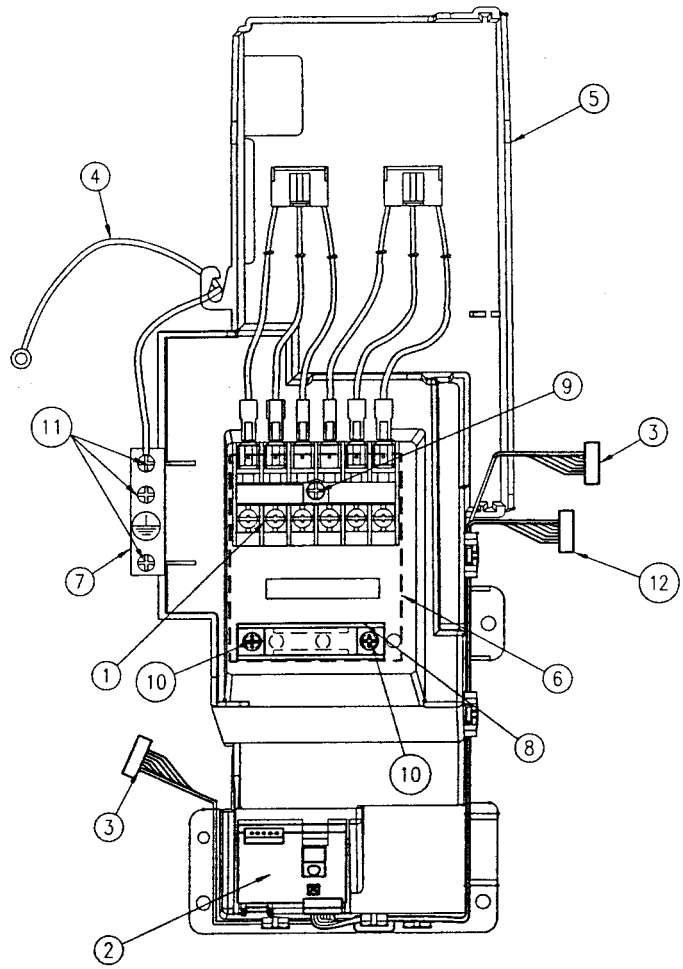


■ Parts List

No.	Description	Specification	Q'TY	Remark
	ASS'Y PCB REMOCON	ARH-403	1	
1	BATTERY COVER		1	

6-3-2 PCB Box

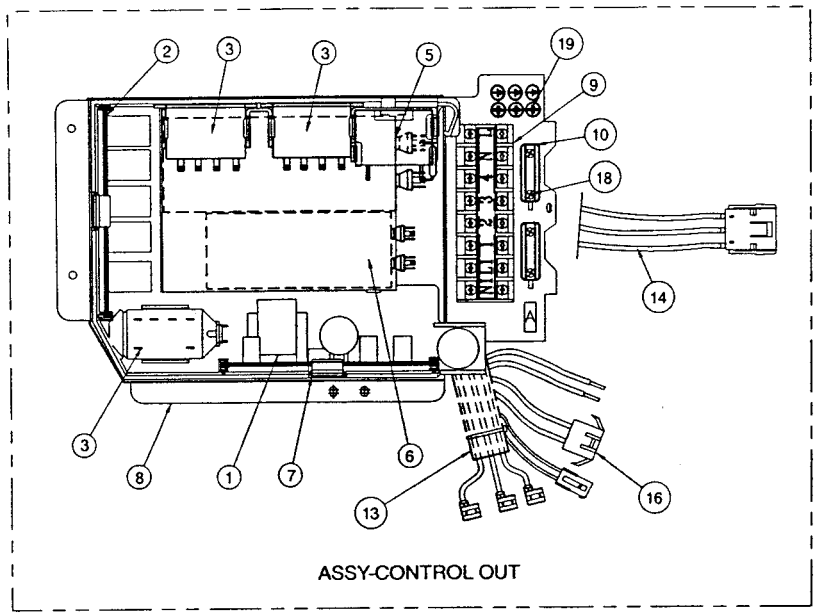
■ Indoor Unit (DB93-00870A)

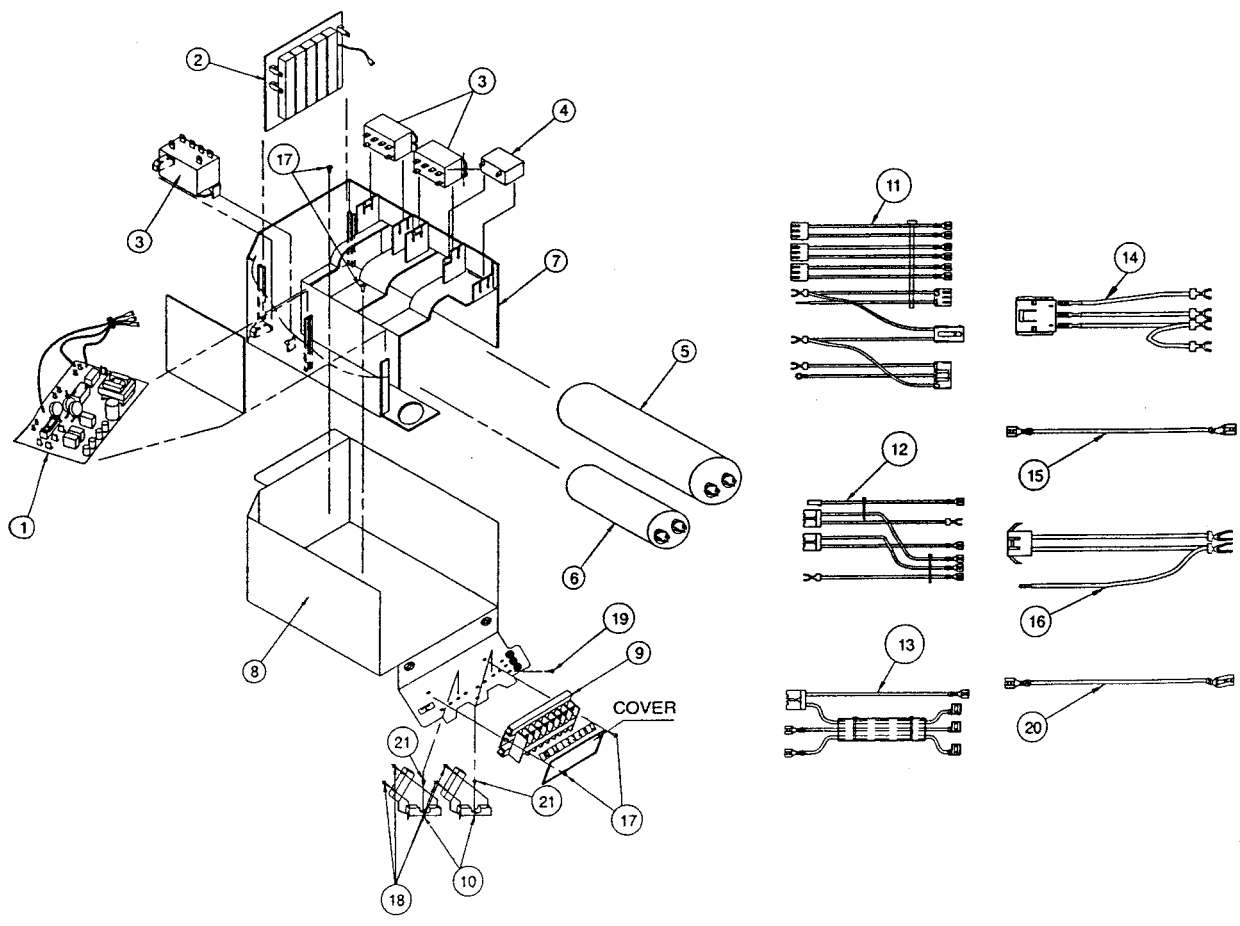


■ Parts List

No.	Description	Specification	CODE-No	Q'TY
1	ASSY-TERMINAL BLOCK	6P	DB65-00073A	1
2	ASSY-MODULE PCB	B-PJT	DB93-00830A	1
3	ASS'Y C/W STEP MOTOR	6P, 1007 AWG #28	DB93-00877A	1
4	C/W EARTH	1P, AWG#16, 1015	DB39-00148A	1
5	HOLDER-CONTROL	HIPS, BLK, V0	DB61-00632A	1
6	HOLDER-CLAMP IN	SGCC-M	DB61-00495A	1
7	BRACKET-EARTH	SGCC-M	DB61-00163A	1
8	HOLDER-WIRE CLAMP		DB61-00171A	1
9	SCREW	PH, M3, L22		1
10	SCREW	TH, +, M4, L16, ZPC(YEL)		2
11	SCREW-EARTH	WP, TH, +, M4xL8, ZPC(YEL)		3
12	CONNECTOR WIRE	UL1007 AWG#26	DB32-00172B	1

■ Outdoor Unit (DB93-00880A)



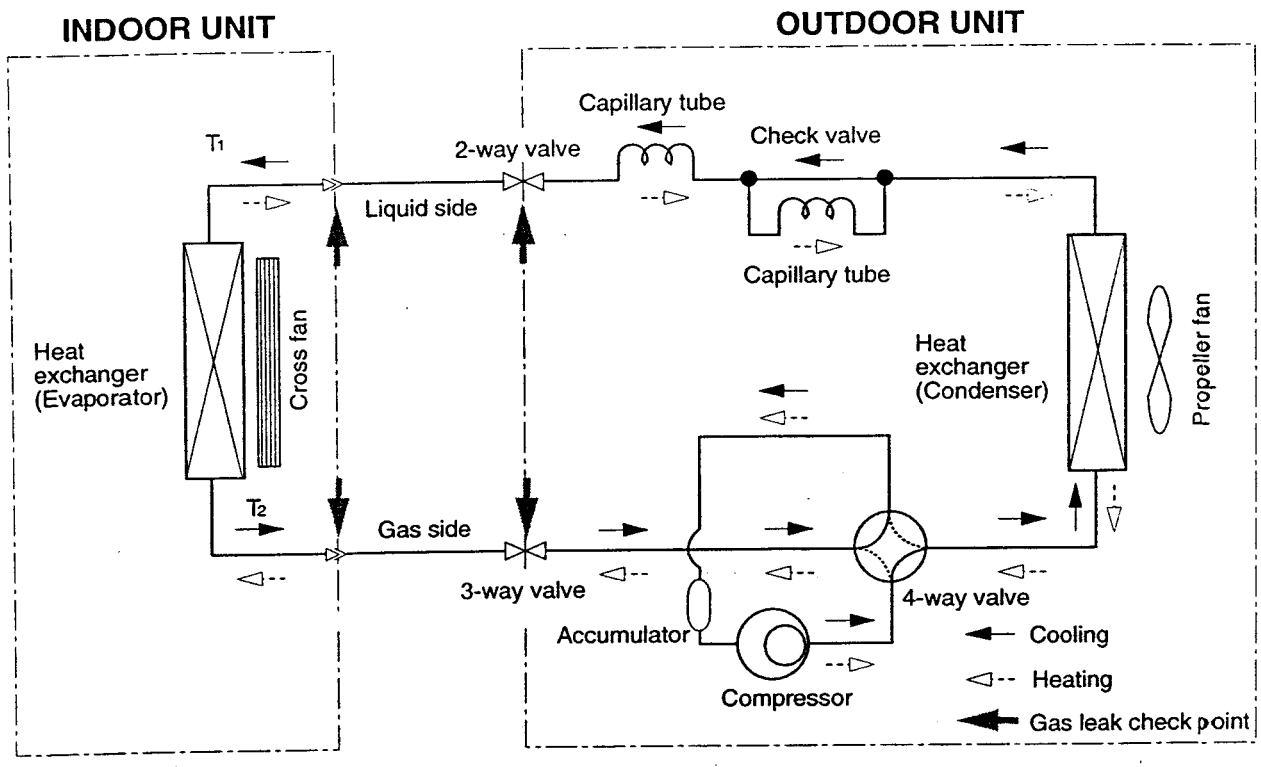


■ Parts List

No.	Description	Specification	CODE-No	Q'TY
1	ASSY-PCB MAIN OUT	ASSY	DB93-00905A	1
2	ASSY-PCB SUB	ASSY	DB93-00873A	1
3	POWER RELAY	G7L-2A-TUB	3051-001026	3
4	C-FILM	AC450V/4uF	2301-001379	1
5	CAPACITOR	AC450V/130uF	2501-001260	1
6	CAPACITOR	AC450V/40uF	2501-001238	1
7	CASE CONTROL OUT	ASSY	DB61-00654A	1
8	ASSY CASE CONTROL OUT	ASSY	DB90-00556A	1
9	ASSY TERMINAL BLOCK	ASSY	DB65-00040A	1
10	HOLDER-WIRE CLAMP		DB61-00250A	2
11	ASSY-CONNECTOR WIRE, DRIVE	ASSY	DB93-00904A	1
12	ASSY-CONNECTOR WIRE, RELAY	ASSY	Db93-00887A	1
13	ASSY-WIRE COMP	ASSY	DB93-00886A	1
14	ASSY-CONNECTOR WIRE MOTOR	ASSY	DB93-00864A	1
15	C/W CAPACITOR	ASSY	DB39-00581A	1
16	ASSY-CONNECTOR WIRE, 4 WAY	ASSY	DB93-00867A	1
17	SCREW	2S, M4, L10		4
18	SCREW	TH, +, M4x16, ZPC(YEL), SWRCH		4
19	SCREW-EARTH	WP, TH, +, M4x8, ZPL(YEL)		2
20	C/W CAPACITOR	ASSY	DB39-00581B	1
21	SCREW-TAPPING	M4, L12, P+, ZS		2

7. Block Diagrams

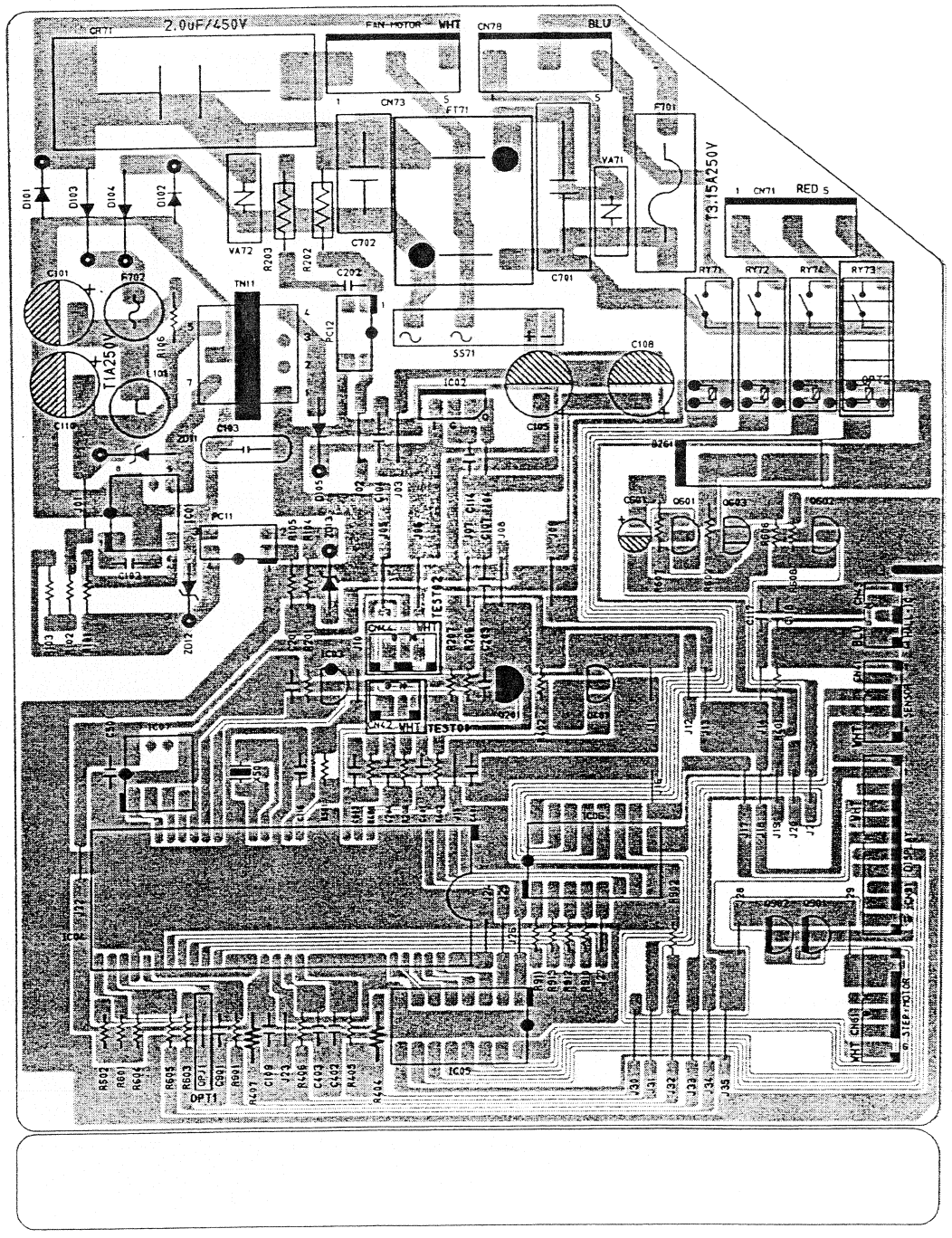
7-1 Refrigerating Cycle Block Diagram



8. PCB Diagrams

8-1 Main PCB

8-1-1 Indoor Unit (PD-SH30ZC-00)

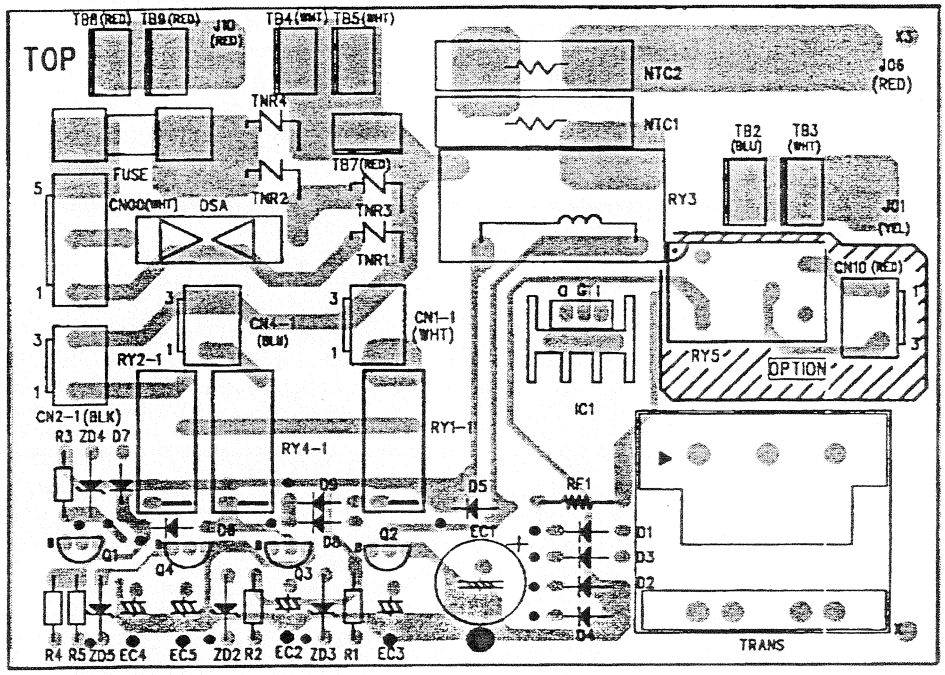


■ Parts List

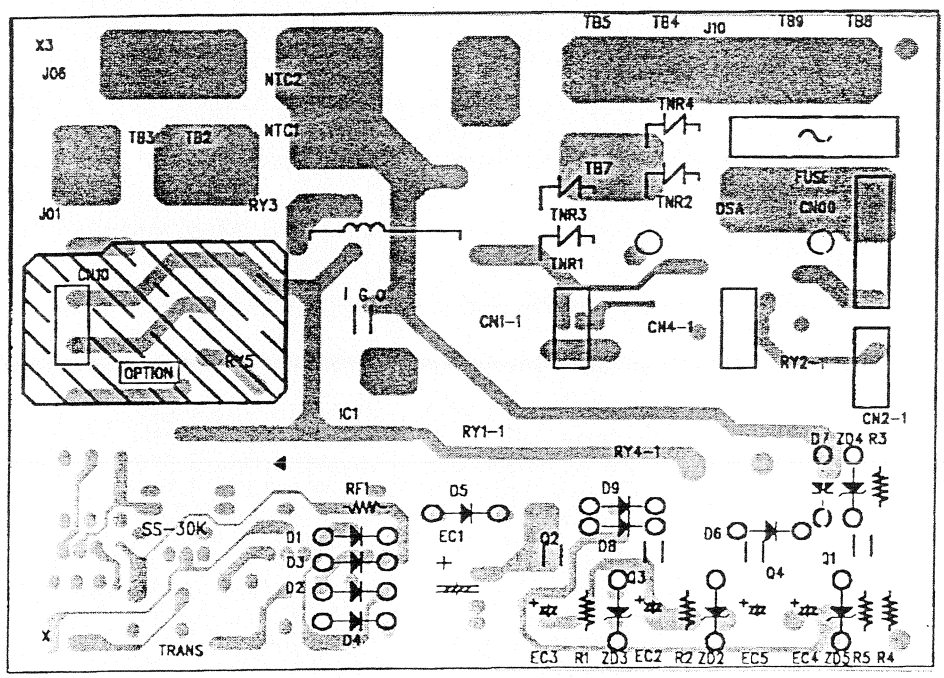
No	Design-Location	Description	Specification	Q'TY
1	C103	C-CERAMIC,DISC	2.2nF,20%,400V,Y5U,TP,12.	1
2	C702	C-FILM,MPPF	100nF,10%,275V,BK,18x6x12,15	1
3	CR71	C-FILM,MPPF	2000nF,+10-5%,450V,BK,38x18x	1
4	C701	C-FILM,MPEF	220NF,10%,275V,BK,26.5X8.5X1	1
5	RY71,72,73,74	RELAY-MINIATURE	12VDC,200MW,3000MA,1FORM	4
6	SS71	SSR	12Vdc,-,2A,1mS,1mS	1
7	IC04	IC MICOM	S3C8469(SDIP)	1
8	IC02	IC-VOLT REGU	KA7805A,TO-220AB,1A,0/125C,	1
9	TN11	TRANS	2UEW0.30/2UEW0.45,1.5KV,1KHz,-,7Pi	1
10	FT71	CHOKE-COIL	LSA-05230P,AC250V,2A,30.5x22x3	1
11	BZ61	BUZZER	CBE2220BA,STICK,-,-,-,-,-,-,-	1
12	F701	FUSE	FST,250V,3.15A,20MM,VDE,50T-03	1
13	F701	HOLDER-FUSE	FH-51H,7.5A,-,-,-,-,-	1
14	D101,102,103,104	DIODE-RECTIFIER	1N4007,1000V,1A,DO-41,TP	4
15	D105	DIODE-RECTIFIER	UG2B,100V,2A,DO-204AC,TP	1
16	ZD12	DIODE-ZENER	DIODE-ZENER;MTZ3.6A,3.6V,3.455-3.695V,50	1
17	ZD13	DIODE-ZENER	DIODE-ZENER;MTZJ11B,11V,10.5-11.05V,500m	1
18	ZD11	DIODE-TVS	DIODE-TVS;ST02D-200,185/200/215V,200W,DO	1
19	Q603	TR-SMALL SIGNAL	TR-SMALL SIGNAL;KSA708-Y,PNP,800mW,TO-92	1
20	Q401,601,602	TR-SMALL SIGNAL	TR-SMALL SIGNAL;KSC945,NPN,250mW,TO-92,T	3
21	Q901,902	TR-DIGITAL	TR-DIGITAL;KSR2002,PNP,300MW,10K/10K,TO-	2
22	Q201	TR-DIGITAL	TR-DIGITAL;KSR1002,NPN,300MW,10K/10K,TO-	1
23	PC11	PHOTO-COUPLER	PHOTO-COUPLER;TR,50-600%,200mW,DIP-4,ST	1
24	PC12	PHOTO-COUPLER	PHOTO-COUPLER;TR,20-300%,200mW,DIP-4,ST	1
25	IC01	IC-PWM CONTROLLER	IC-PWM CONTROLLER;255,DIP,8P,300MIL,PLAS	1
26	VA71,72	VARISTOR	560V,2500A,17.5x7.5mm,TP	2
27	R405,406	R-CARBON	330ohm,5%,1/8W,AA,TP,1.8x3.2mm	2
28	R104,105	R-CARBON	220OHM,5%,1/4W,AA,TP,2.4X6.4MM	2
29	R101	R-CARBON	470OHM,5%,1/4W,AA,TP,2.4X6.4MM	1
30	R206,501,502,601,604,606,902	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	7
31	R201,207,208,401,403,408,603,605,608	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	9
32	R910,911,912,913	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	4
33	R102,103	R-CARBON	330KOHM,5%,1/4W,AA,TP,2.4X6.4MM	2
34	R106,901	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	2
35	R607	R-CARBON	560OHM,5%,1/4W,AA,TP,2.4X6.4MM	1
36	R402	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	1
37	R602	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4M	1
38	R202,203	R-METAL OXIDE(S)	51Kohm,5%,2W,AA,TP,4x12	2
39	R404,407	R-METAL	6.8Kohm,1%,1/8W,AA,TP,1.8x3.2m	2
40	C203,204,401	C-CERAMIC,MLC-AXIAL	10nF,+80-20%,25V,Y5V	3
41	C404,903	C-CERAMIC,MLC-AXIAL	1nF,10%,50V,Y5P,TP,1	2
42	C102,104,107,109,114,116,117,118,201, 202,402,403,501,901	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5	14
43	C105	C-AL	1000uF,20%,25V,GP,TP,10x20,5	1
44	C601	C-AL	47uF,20%,50V,GP,TP,6.3x11,2.5	1
45	C108	C-AL	470uF,20%,25V,GP,TP,10x16,5	1
46	C101,110	C-AL	6.8uF,20%,450V,GP,TP,10x16mm,5	2
47	X501	RESONATOR-CERAMIC	4MHz,0.5%,TP,10.0x5.0x	1
48	F702	FUSE-RADIAL LEAD	250V,1A,TIME-LAG,-,8.5x	1
49	CN78	CONNECTOR-HEADER	1WALL,3P/5P,1R,3.96mm,S	1
50	CN71	CONNECTOR-HEADER	1WALL,3P/5P,1R,3.96mm,S	1
51	CN73	CONNECTOR-HEADER	1WALL,3P/5P,1R,3.96mm,S	1
52	CN91	CONNECTOR-HEADER	BOX,10P,1R,2.5mm,STRAIG	1
53	CN43	CONNECTOR-HEADER	BOX,3P,1R,2.5mm,STRAIGH	1
54	CN41	CONNECTOR-HEADER	BOX,4P,1R,2.5mm,STRAIGH	1
55	CN61	CONNECTOR-HEADER	BOX,6P,1R,2.5mm,STRAIGH	1
56	IC07	IC-MASK ROM	93LC56B,8BIT,-,DIP,8P,-,-,-	1
57	IC03	IC-RESET	KA7533,DIP,-,-,-,-,-	1
58	IC06	IC-DRIVE	KID65003AP,DIP,16P,STICK,TR-AR	2
59	L101	COIL CHOKE	5.0mH,-,8.0*11.0,-,-,PE-M10	1
60		WIRE-SO COPPER	PI0.6,SN,T,52MM,TAPING_WI	35
61		PCB-MAIN	PD-SH30ZC-00,FR-1,-,-,T1.6,W197	1

8-1-2 Outdoor Unit (DB93-00905A)

■ TOP



■ BOTTOM



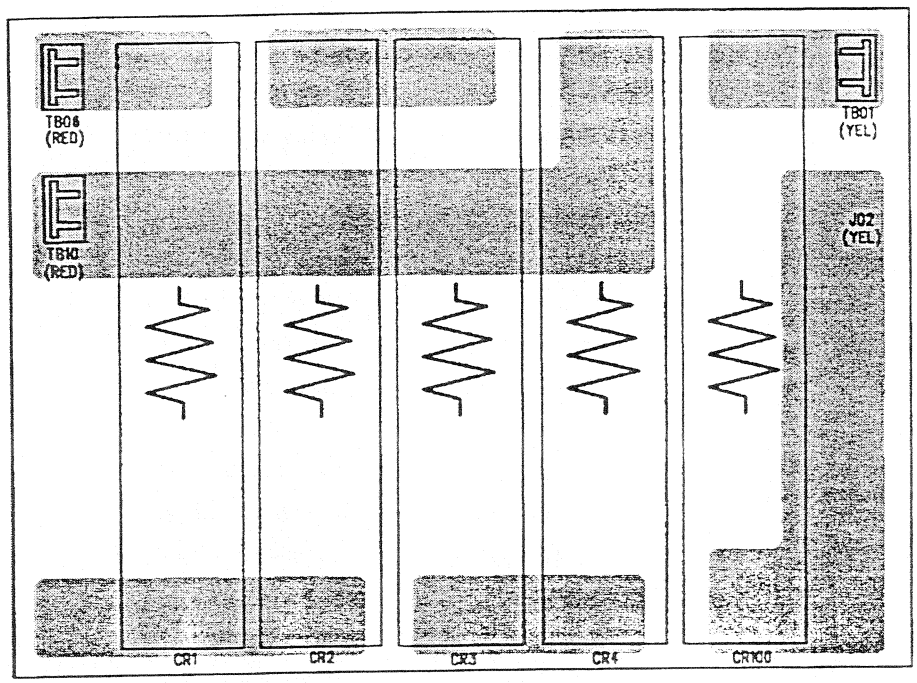
■ Parts List

No	Design-Location	Description	Specification	Q'TY
1		PCB MAIN	FR-4,FR704-7405 T1.6 135x100	1
2	DSA	D.S.A.	DSA 332MA	1
3	RY1-1, RY2-1, RY4-1	RELAY	F3AA012E	3
4	RY3	RELAY	G4A-1A-E	1
5	RY5	RELAY	UT205-12SC	1
6	TRANS	L.V.TRANS	230VAC/DC17V/0.3A	1
7	IC1	IC	KA7812	1
8	HS	HEAT SINK	AL	1
9	CNT1,CNT2	NTC	CNT2507	2
10	FUSE	FUSE	50T 250VAC 3.15A	1
11	FUSE	F/HOLDER	YH 20mm	1
12	TNR1~TNR3	VARISTOR	1NR14D561	3
13	TNR4	VARISTOR	1NR14D471	1
14	CN00	CONNECTOR	YW396-05AV WHT	1
15	CN1-1	CONNECTOR	YW396-03AV WHT	1
16	CN2-1	CONNECTOR	YW396-03AV BLK	1
17	CN4-1	CONNECTOR	YW396-03AV BLU	1
18	CN10	CONNECTOR	YW396-03AV RED	1
19	TB2~TB5, TB7~TB9	T/TERMINAL	GP 881206-2 #250	7
20	J01, J06, J10	HARNESS AS	UL1015 AWG #14, YL 200mm	1
21	EC1	C, ELECTRO	1000μF 35V	1
22	EC2	C, ELECTRO	100μF 25V	1
23	EC3	C, ELECTRO	47μF 25V	1
24	EC4	C, ELECTRO	10μF 50V	1
25	EC5	C, ELECTRO	220μF 25V	1
26	Q1~Q4	T.R	2SC3198	4
27	D1~D9	DIODE	1N4004	9
28	R1	R, CARBON	4.7kΩJ 1/4w	1
29	R2, R3	R, CARBON	5.6kΩJ 1/4w	2
30	R4	R, CARBON	12kΩJ 1/4w	1
31	R5	R, CARBON	3.3kΩJ 1/4w	1
32	RF1	R, FUSIBLE	FUSIBLE 27Ω-J 1/2W	1
33	ZD2, ZD5	ZENER DIODE	8.2V 1W	2
34	ZD3, ZD4	ZENER DIODE	6.2V 1W	2
35	IC1	SCREW	T1 3x8	1

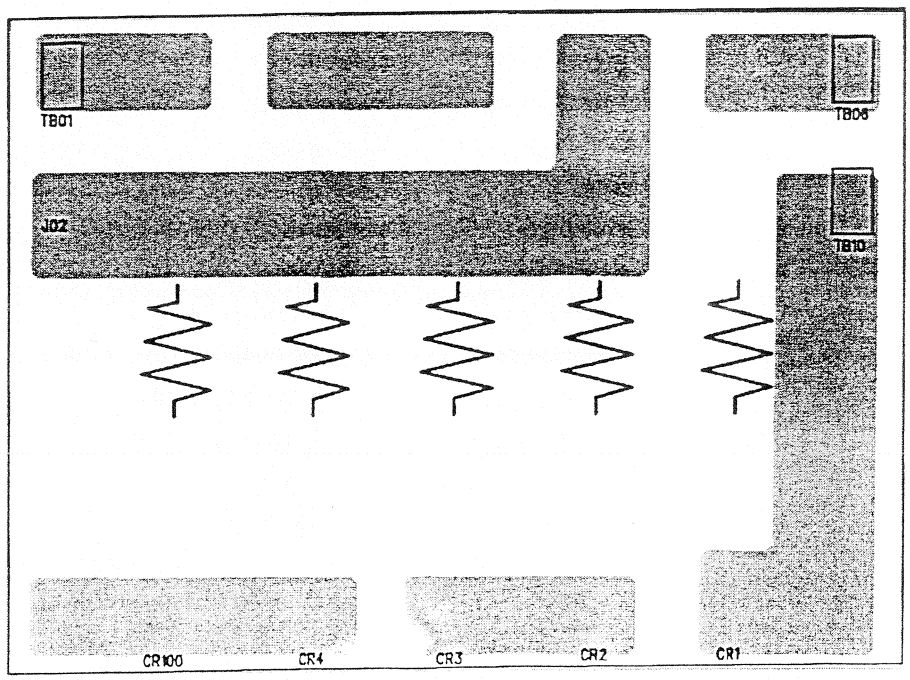
8-2 Sub PCB

8-2-1 Outdoor Unit (DB93-00873A)

■ TOP



■ BOTTOM

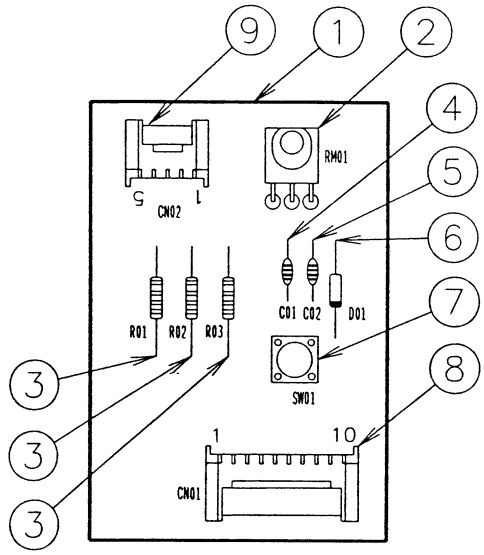


■ Parts List

No	Design-Location	Description	Specification	Q'TY
1		PCB SUB	FR-4,FR704-7405 135x100	1
2	CR101~CR104	R,CEMENT	1.6Ω / 40W	4
3	CR105	R,CEMENT	0.7Ω / 40W	1
4	J02	HARNESS	UL1015 AWG #14, YL, 200mm	1
5	TB01, TB06, TB10	T/TERMINAL	GP 881206-2 #250	3

8-3 ASS'Y DISPLAY & MODULE

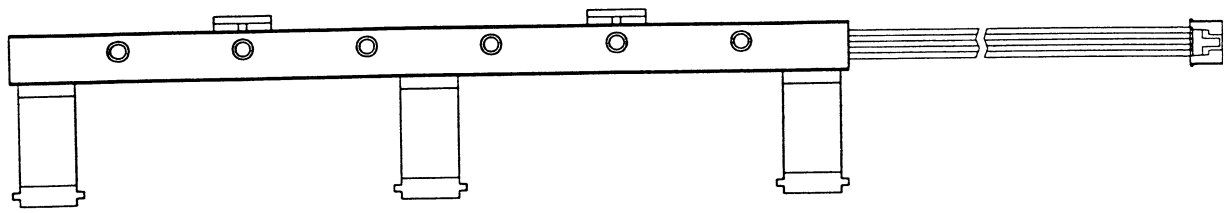
8-3-1 ASS'Y MODULE PCB : DB93-00830A



■ Parts List

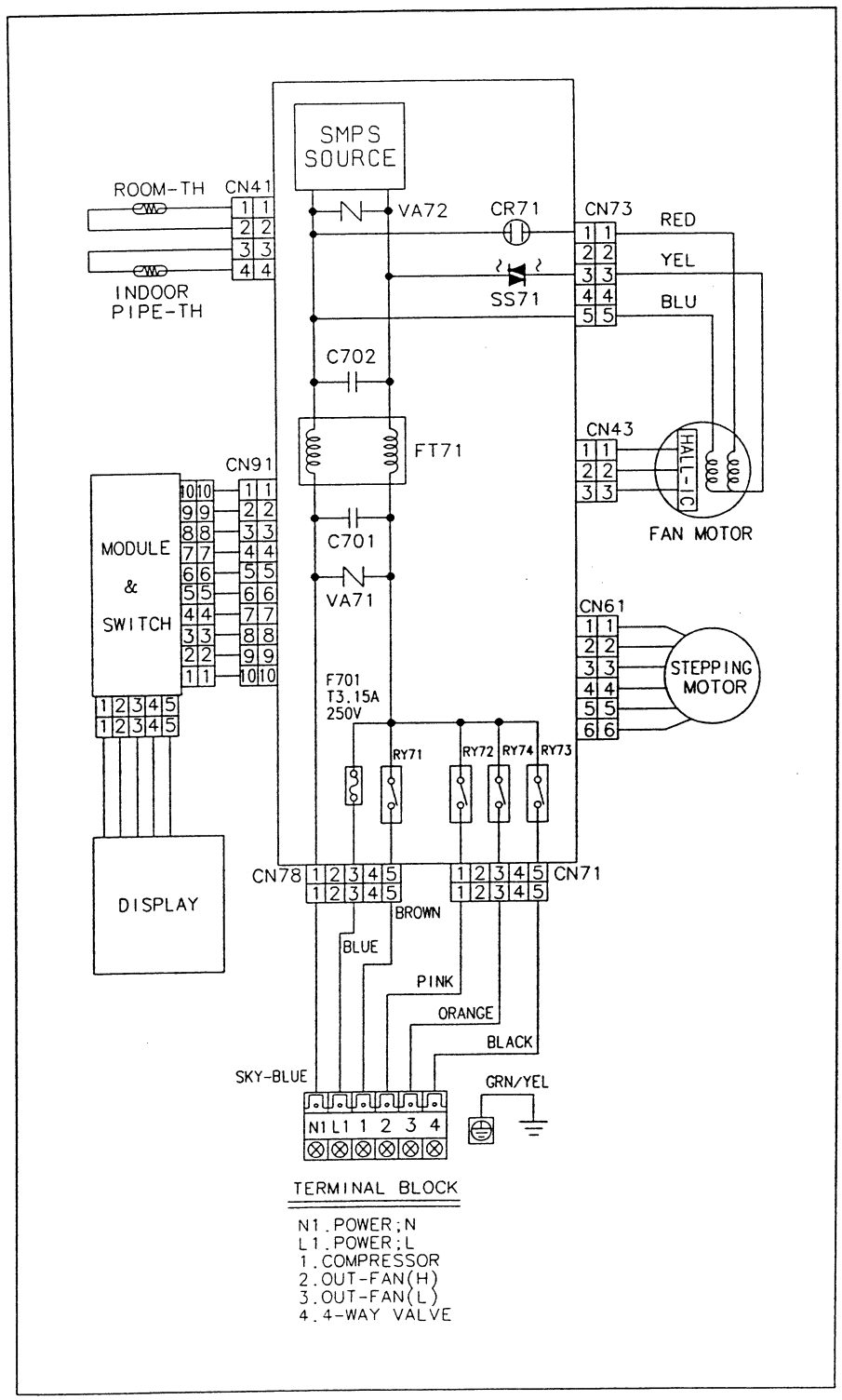
No	Description	Specification	Q'TY	Remark
1	PCB-DISPLAY	FR-1 T1.6	1	
2	MODULE REMOCON	PNA4612M00HB	1	
3	R-CARBON	RD 1/4 TP 471-J	3	
4	C-CERAMIC	CA 0A 50V 102Z	1	
5	C-CERAMIC	CA 0A 50V 104Z	1	
6	DIODE SWITCHING	1N4148	1	
7	TACT SWITCH	YTT-1230A	1	
8	CONNECTOR WAFER	SMAW200-10P	1	
9	CONNECTOR WAFER	SMAW200-5P	1	

8-3-2 ASS'Y DISPLAY PCB : DB93-00823A

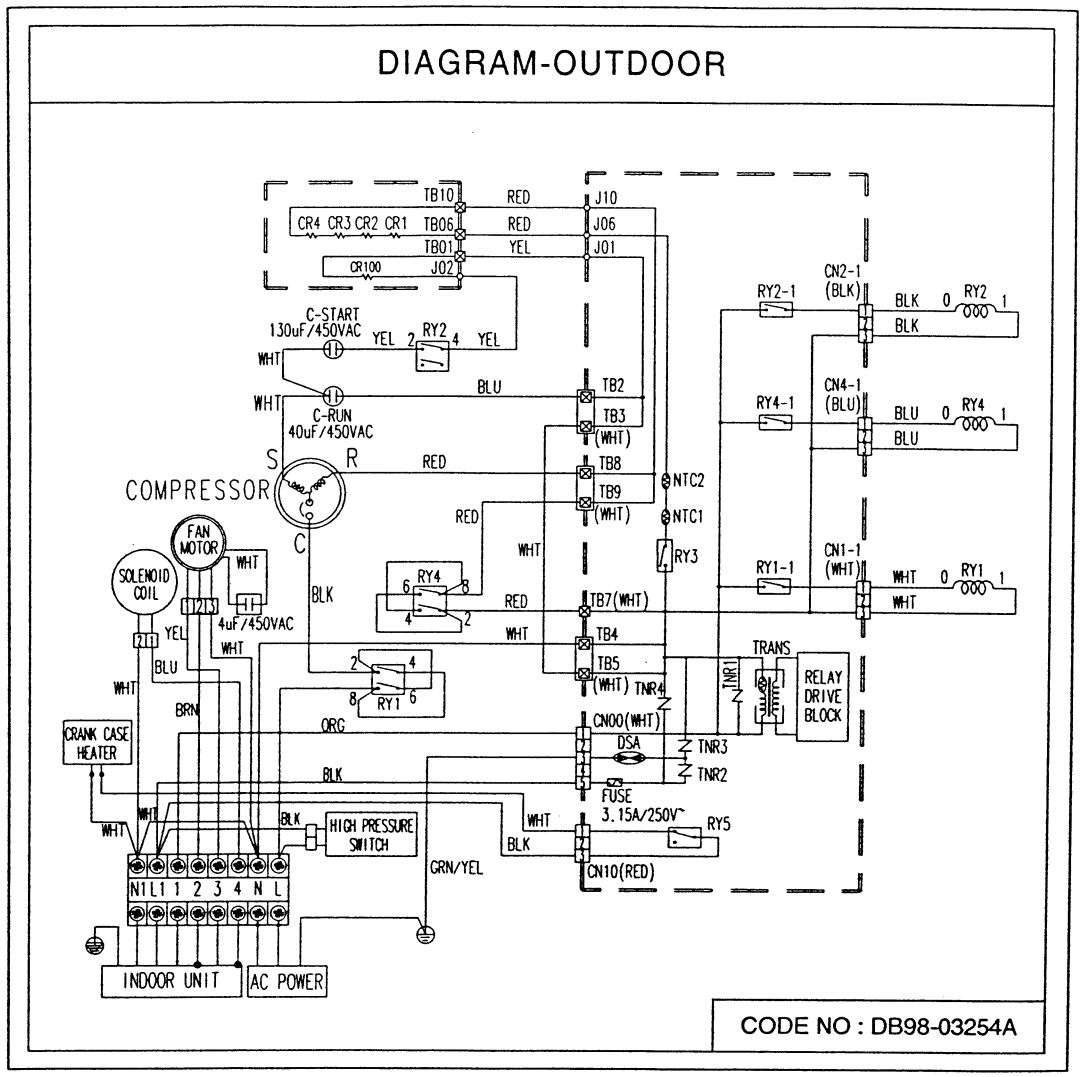


9. Wiring Diagrams

9-1 Indoor Unit

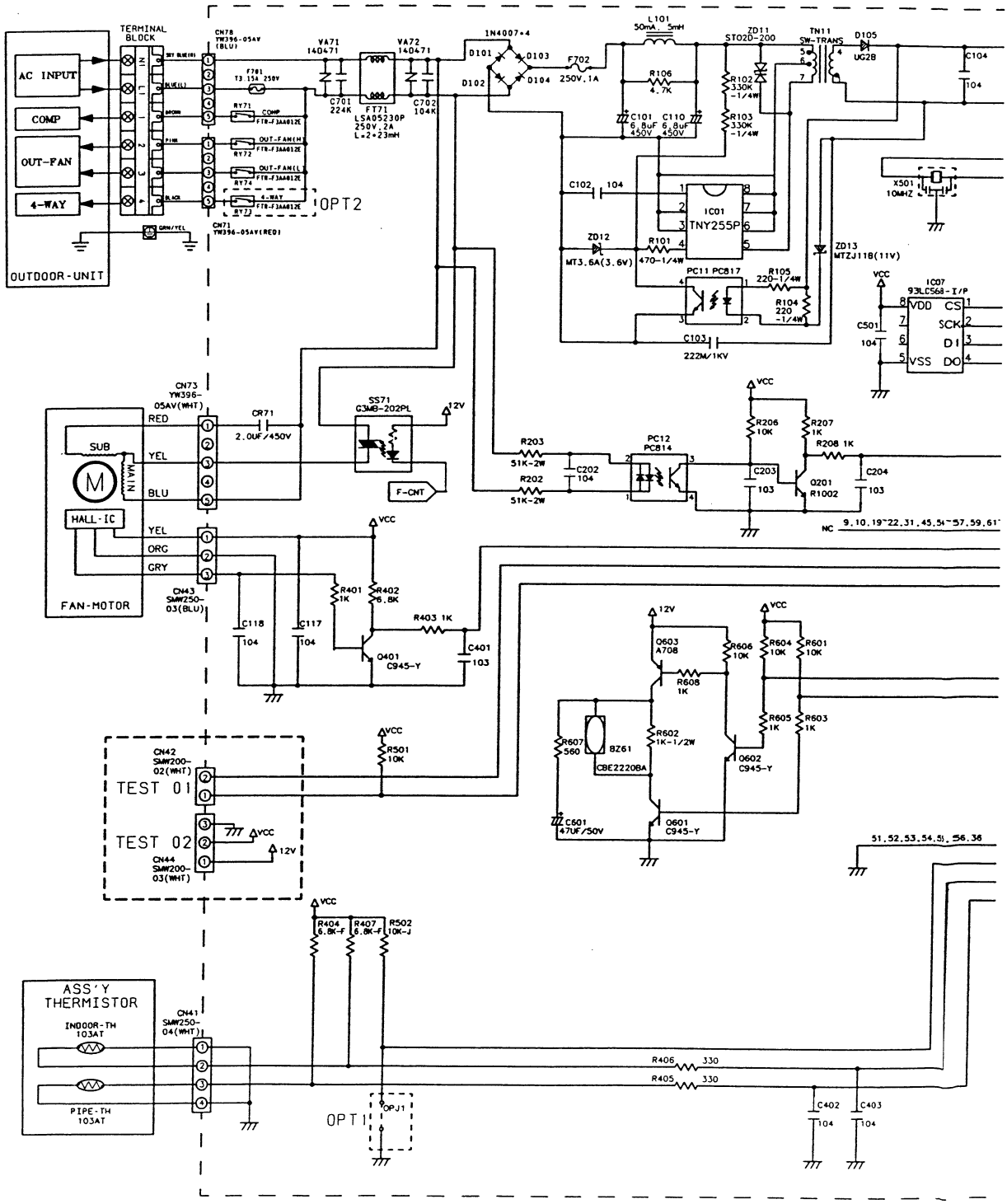


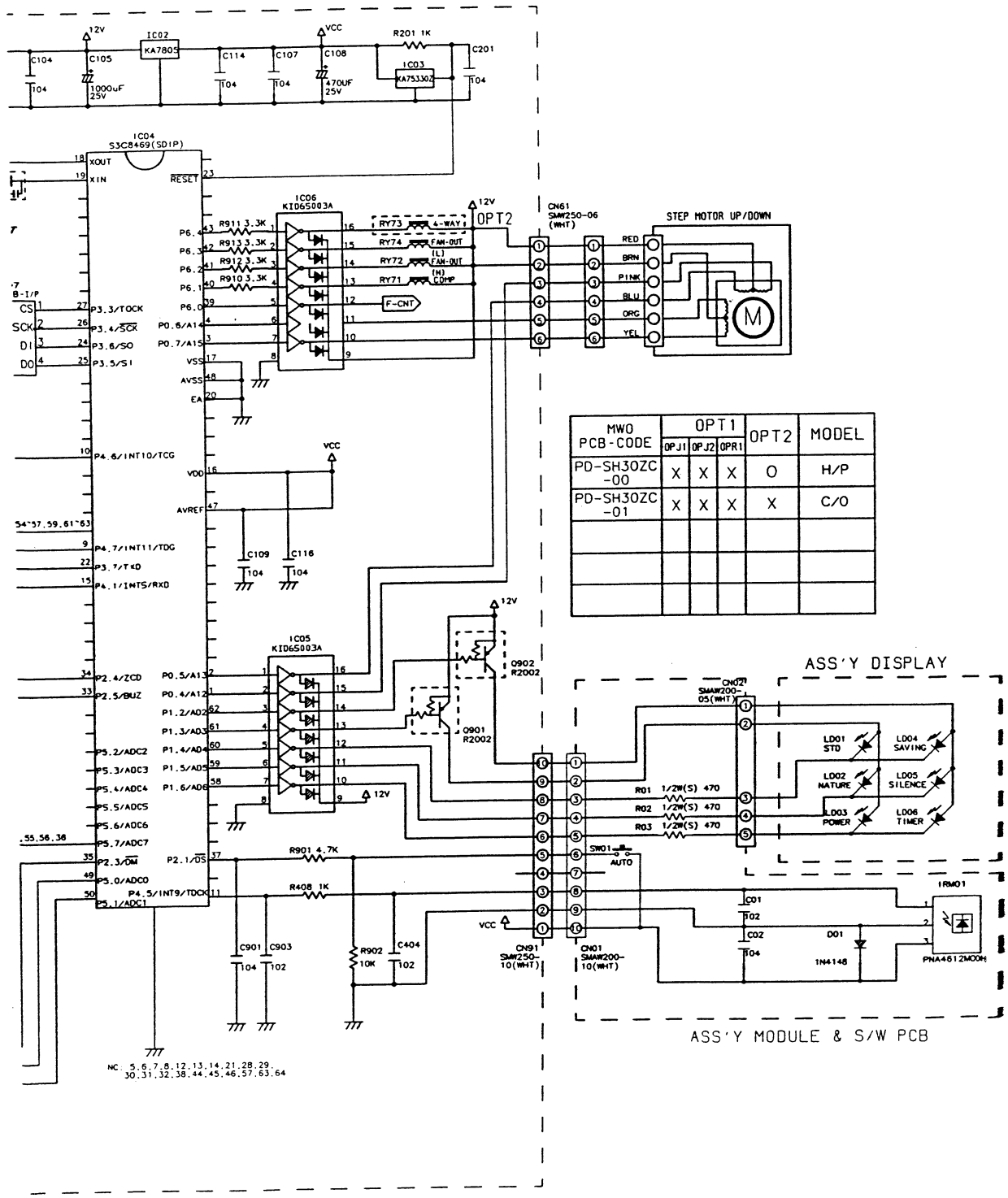
9-2 Outdoor Unit



10. Schematic Diagrams

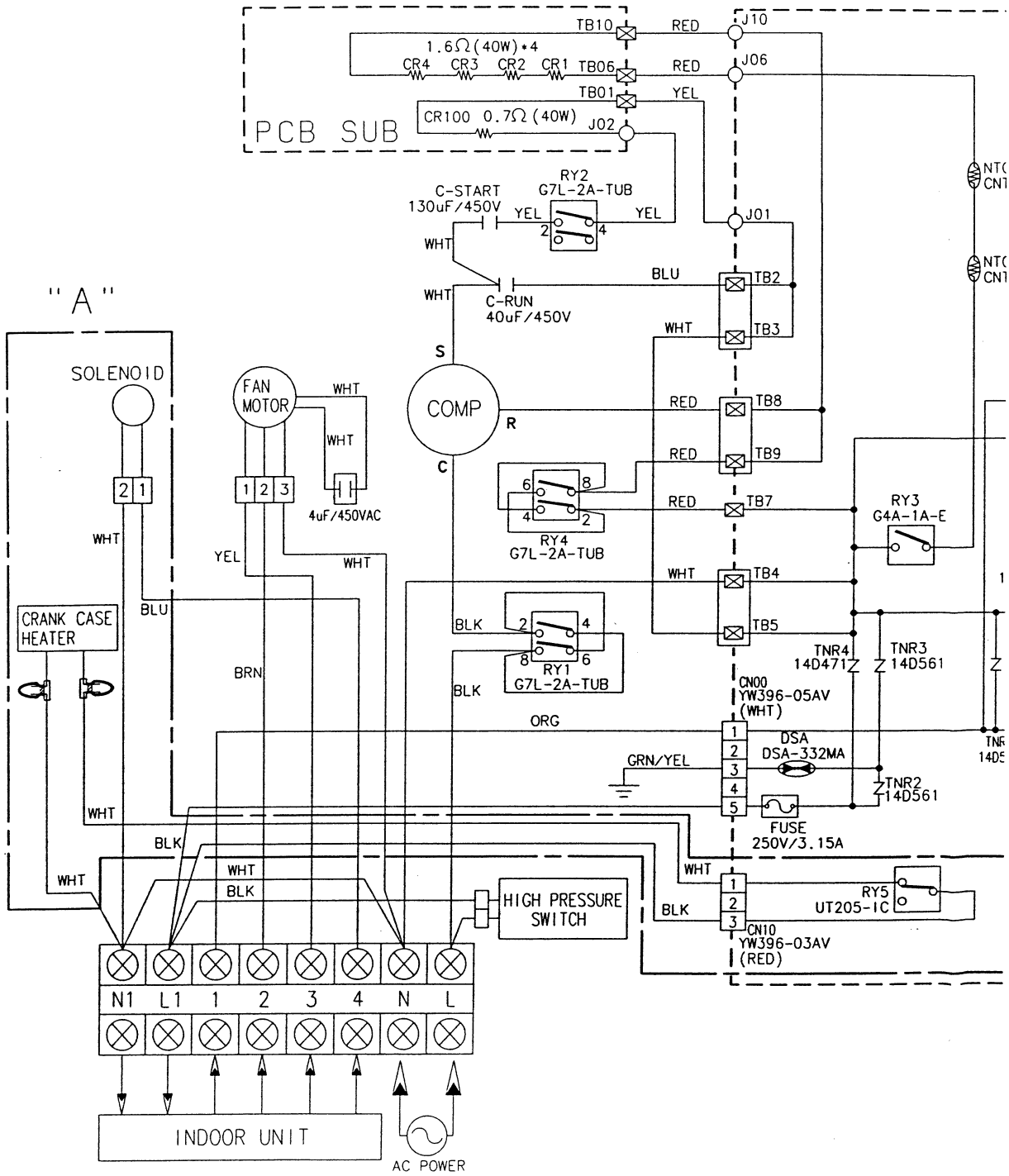
10-1 Indoor Unit

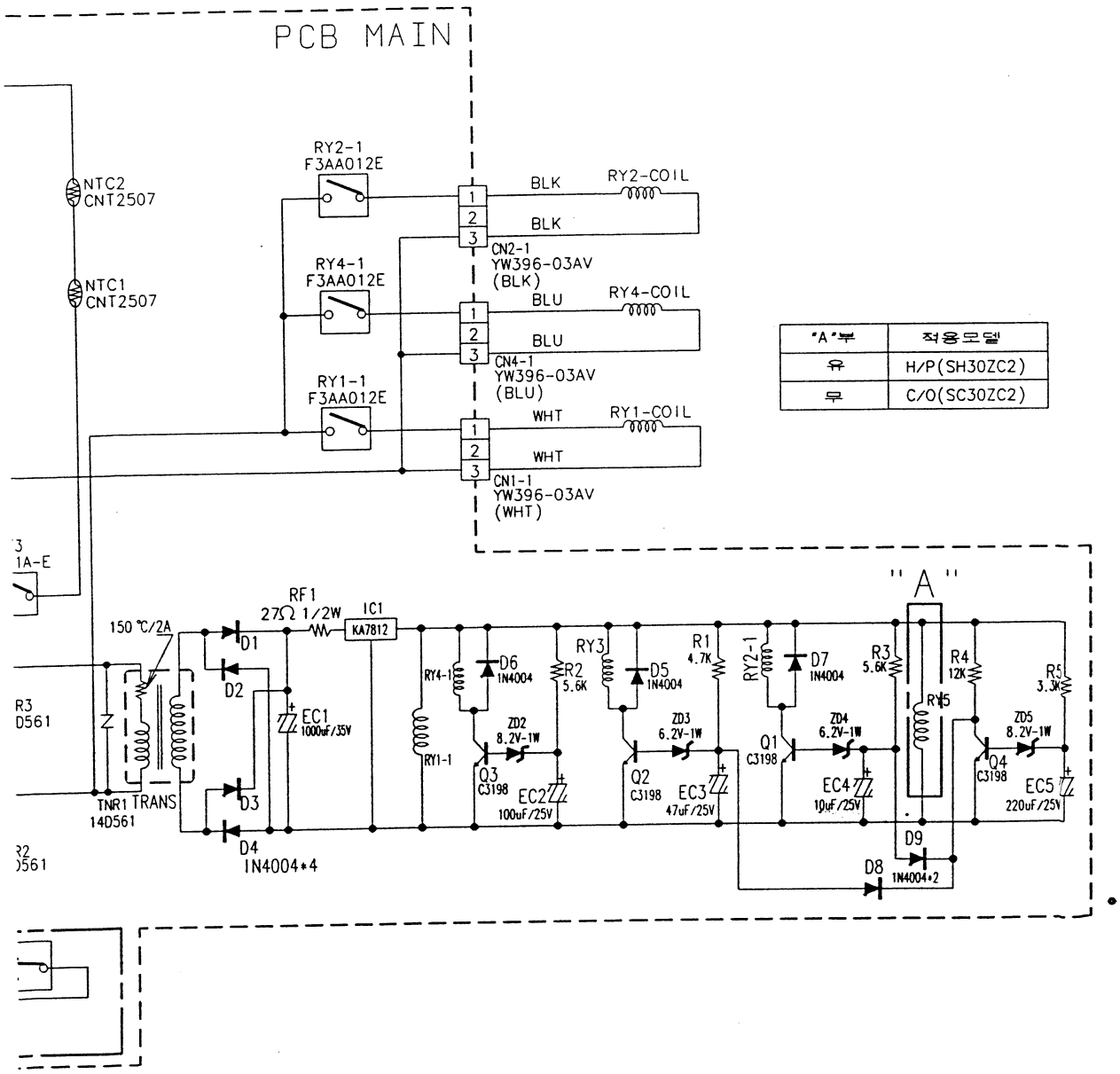




MWO PCB-CODE	OPT1			OPT2	MODEL
	OPJ1	OPJ2	OPR1		
PD-SH30ZC-00	X	X	X	O	H/P
PD-SH30ZC-01	X	X	X	X	C/O

10-2 Outdoor Unit




PCB MAIN
NTC2
CNT2507
NTC1
CNT2507
RY2-1
F3AA012E
RY4-1
F3AA012E
RY1-1
F3AA012E
BLK
RY2-COIL
BLK
CN2-1
YW396-03AV
(BLK)
BLU
RY4-COIL
BLU
CN4-1
YW396-03AV
(BLU)
WHT
RY1-COIL
WHT
CN1-1
YW396-03AV
(WHT)
"A"부
적용모델
유
H/P(SH30ZC2)
무
C/O(SC30ZC2)
"A"
RF1
27Ω 1/2W
IC1
KA7812
150 ℃/2A
D1
D2
D3
D4
IN4004*4
EC1
1000uF/35V
TNR1 TRANS
14D561
RY4-1
RY1-1
D6
1N4004
R2
5.6K
ZD2
8.2V-1W
Q3
C3198
EC2
100uF/25V
RY3
D5
1N4004
ZD3
6.2V-1W
Q2
C3198
EC3
47uF/25V
R1
4.7K
RY2-1
D7
1N4004
Q1
C3198
ZD4
6.2V-1W
EC4
10uF/25V
R3
5.6K
RY5
D9
1N4004*2
D8
R4
12K
Q4
C3198
ZD5
8.2V-1W
EC5
220uF/25V
R5
3.3K

UPDATE LOG SHEET

Application date	Page	Part#	Note(Cause & Solution)	S/Bulletin#

Use this page to keep any special servicing information. (Service Bulletin, etc.)
If only parts number changes, Just change parts number directly on parts list.
And if you need more information, please see the service website.

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